

TOWN OF INDIAN HEAD
Charles County, MD

PROJECT MANUAL

FOR

PARKING LOT IMPROVEMENT

Engineer's Project No. 10982.43

June 2025

ARRO Consulting, Inc.
186 Thomas Johnson Drive
Suite 204-D
Frederick, MD 21702
301.791.1100

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INVITATION TO BID

Project: **PARKING LOT IMPROVEMENT:** The project generally consists of the construction of a pervious concrete parking lot, a concrete walkway, and a boardwalk connector to provide access from the new parking lot to the existing trail at Riverwatch Drive. The work also includes, but not limited to, excavation, backfill, drainage infrastructure, sediment and erosion control measures, landscaping, and all incidental work necessary to complete the project in accordance with the contract documents. The project is located in the Town of Indian Head, Charles County, Maryland.

Owner: **TOWN OF INDIAN HEAD**
4195 Indian Head Highway
Indian Head, MD 20640

Engineer: **ARRO CONSULTING, INC.**
186 Thomas Johnson Drive, Suite 204-D
Frederick, MD 21702
Telephone: 301.791.1100

Bids will be received via the PennBid Program until 10:00 A.M., on June 30, 2025.

A pre-bid meeting followed by a site visit will be held at 11:00 A.M, prevailing time, June 16, 2025, at office of the Owner.

Attendance at the pre-bid meeting and site visit is non-mandatory; however, attendance is encouraged. It is the responsibility of the Contractor to visit the site prior to submitting a bid.

Questions will be accepted until 4:00 P.M, prevailing time, on June 23, 2025. **All questions must be submitted through PennBid.**

The **OWNER** hereby reserves the right, which is understood and agreed to by all Bidders, to reject any, or all Bids and to waive any omissions, errors, or irregularities in any Bid.

TOWN OF INDIAN HEAD

RYAN L. HICKS, TOWN MANAGER

DOCUMENT 00010

INVITATION TO BID

Project: **PARKING LOT IMPROVEMENT:** The project generally consists of the construction of a pervious concrete parking lot, a concrete walkway, and a boardwalk connector to provide access from the new parking lot to the existing trail at Riverwatch Drive. The work also includes, but not limited to, excavation, backfill, drainage infrastructure, sediment and erosion control measures, landscaping, and all incidental work necessary to complete the project in accordance with the contract documents. The project is located in the Town of Indian Head, Charles County, Maryland.

Owner: **TOWN OF INDIAN HEAD**
4195 Indian Head Highway
Indian Head, MD 20640

Engineer: **ARRO CONSULTING, INC.**
186 Thomas Johnson Drive, Suite 204-D
Frederick, MD 20640

Bids will be received online via the PennBid Program until 10:00 A.M. prevailing time, June 30, 2025 at which time they will be opened. After bid opening the results will be available for viewing at the PennBid website. Successful bidder will be selected by Owner at a later date.

A pre-bid meeting followed by a site visit will be held at 11:00 A.M, prevailing time, June 16, 2025, at office of the Owner.

Attendance at the pre-bid meeting and site visit is not mandatory; however, attendance is encouraged. It is the responsibility of the Contractor to visit the site prior to submitting a bid.

Questions will be accepted until 4:00 P.M, prevailing time, on June 23, 2025; questions will be accepted through PennBid, only from prime bidders. **All questions must be submitted through PennBid and will not be accepted in any other manner.**

Bidding Documents and solicitation details are available online without charge, at pennbid.bonfirehub.com.

The apparent low bidder and the next two lowest bidders must submit, to the Engineer, originals of the Bidding Documents within two (2) business days from the date of the bid opening.

Reproduction of the Bidding Documents and placement on web sites other than PennBid, is not permitted.

Bids may be modified or withdrawn at any time prior to the opening of Bids.

After the Bid opening, Bids may be withdrawn only by complying with State of Maryland laws and regulations. A summary of such laws and regulations is given in the Instructions to Bidders (Document 00100).

Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. See Instructions to Bidders for other provisions on the time available for acceptance of Bids.

Each Bid must be accompanied by Bid security in the form of a certified check, bank check, irrevocable letter of credit, or Bid bond (on the form included with the Bidding Documents) for ten percent (10%) of the Bid total.

It is a requirement of this Contract that at least 50% of the Work be performed by prime Bidder's own work force, not by subcontractor(s).

It is a requirement of this Contract that Bidders shall have a minimum of five (5) years, ten (10) project documented experience in the type of work required by this project.

Bidders, subcontractors, their workers, and any persons providing labor and products to the Project shall be persons lawfully permitted to work in the United States and the State of Maryland.

The **OWNER** hereby reserves the right, which is understood and agreed to by all Bidders, to reject any or all Bids and to waive any irregularities in any Bid not involving price, time, or changes in the Work.

TOWN OF INDIAN HEAD

RYAN L. HICKS, TOWN MANAGER

DOCUMENT 00100

INSTRUCTIONS TO BIDDERS

Article 1 - Defined Terms

1.01 Terms used in these *Instructions to Bidders*, which are defined in the Standard General Conditions of the Construction Contract, as prepared by the Engineer's Joint Contract Documents Committee (Document EJCDC C – 700, 2007 Edition), have the meanings assigned to them in the General Conditions. Additional terms used in these *Instructions to Bidders* have meanings indicated below, which are applicable to both the singular and plural thereof.

- A. Issuing Office – The office from which the Bidding Documents are to be issued and made available for sale, and where the bidding procedures are to be administered.
 - 1. Issuing Office is the office of the Engineer whose name, address and phone number are listed in the Invitation to Bid.
- B. Successful Bidder – The lowest, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.
- C. PennBid™ – Bid management program, which is being used for bid solicitation for the Project. PennBid's web address is pennbid.bonfirehub.com.

Article 2 - Copies of Bidding Documents

2.01 Complete sets of the Bidding Documents may be obtained online at no cost via the PennBid Program (pennbid.bonfirehub.com).

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents, or Bidding Documents purchased from sources other than the issuing office.

2.03 Bids from prospective Bidders who have not obtained the Bidding Documents from the issuing office and who have not obtained complete sets of Bidding Documents will not be accepted.

2.04 Copies of Bidding Documents are made available on the above terms only for the purpose of obtaining Bids on the Work and not to confer a license or grant for any other use.

2.05 Digitizing and posting Bidding Documents on the Internet or on websites of prospective Bidders and other parties, or reproduction of Bidding Documents by others, is not permitted without Engineer's approval.

Article 3 - Qualifications of Bidders

3.01 To demonstrate qualifications to perform the Work, Bidder shall submit with the Bid the qualification data indicated in the Invitation to Bid, the following Paragraph(s) of Article 3, and the Bid Form. Bidders shall also be prepared to submit, within five calendar days after the Bid opening date, upon Owner's request, such additional data as may be pertinent to the Project.

3.02 The Bid of out-of-State Bidders and their Subbidder(s), if any, shall contain evidence of qualification to do business in the State of Maryland or covenant to obtain such qualification prior to and as a condition of award of a Contract.

- A Bidders are required, under the Business Regulation Article, Section 17-602, Annotated Code of Maryland, to show evidence of Certificate of Registration before award of Contract.
- B A copy of current License to operate in the State of Maryland will be required at the time of awarding the Contract.

3.03 To obtain information concerning qualifications of a Bidder, the Owner requires that a completed Experience Questionnaire be submitted on the form included in the Bidding Documents. Bidder shall include the completed Experience Questionnaire with the Bid.

3.04 Submission of financial information is not required with the Bid, but the Owner reserves the right to request such information as part of the Bid evaluation process.

Financial Information of all Bidders will be returned after selection of the apparent low bidder is made.

3.05 It is a requirement of the Contract that Bidders shall have a minimum (5) year, (10) project documented experience in the type of Work required by this Project. Submit required documentation with the Bid.

3.06 Failure, or refusal, to submit documentation required by the Invitation to Bid, this Article 3, and the Bid Form will be reason for rejection of the Bid. Following are additional reasons for rejection of the Bid:

- A. Failure to submit the Bid and other Bidding Documents, on the forms included in the Project Manual.
- B. Failure to sign the Bid Form or any of the required affidavits and other documents attached to it.
- C. Failure to furnish the required Bid Security.
- D. Failure to include a unit/lump sum price for each item on the Bid Form, including Alternates.

- E. The inclusion by Bidder of conditions or qualifications not provided for in the Bidding Requirements and Bidding Documents.
- F. Submission of incomplete Bid Form or other required documents.
- G. If the Bid Form contains any omissions, erasures, alterations, additions not called for, or irregularities of any other kind.
- H. If any bid prices are obviously unbalanced.
- I. When applicable, non-attendance at a mandatory pre-bid meeting and if applicable, site visit.
- J. Debarment by a Commonwealth agency, political subdivision, or Federal agency.
- K. Having been declared in default on prior projects.

Article 4 - Examination of Contract Documents and Site

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

- A. To examine thoroughly the Bidding Documents;
- B. To visit the site and become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
- C. To consider federal, state, and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
- D. To study and carefully correlate Bidder's knowledge and observations with the Bidding Documents and such other related data; and
- E. To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Bidding Documents.
- F. 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.

1. Bidder shall be responsible for restoration of areas disturbed due to supplementary examinations, investigations, explorations, and tests concerning existing aboveground and underground conditions at, or contiguous to the Site.

4.03 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 or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

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 Article 4, Paragraphs 4.02, 4.03, and 4.04 of the General Conditions, as amended by the Supplementary Conditions.

4.05 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 the specific means, methods, techniques, sequences or procedures of construction (if any) 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 is 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.

4.06 The provisions of this Article 4 do not apply to Hazardous Environmental Conditions at the site; provisions concerning these conditions appear in Article 4, Paragraph 4.06 of the General Conditions.

Article 5 - Availability of Lands for Work

5.01 The lands upon which the Work is to be performed, rights-of-way and easements for temporary or permanent access, and other lands designated for use by Contractor in performing the Work are identified in the Bidding Documents. All additional lands and access required for temporary construction facilities, or storage of construction equipment and of Products to be incorporated in the Work shall be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by Owner, unless otherwise provided in the Bidding Documents.

Article 6 - Interpretations and Addenda

6.01 All questions about the meaning or intent of the Bidding Documents shall be submitted in writing via PennBid's "Questions" tab. Interpretations, or clarifications, considered necessary by Engineer in response to such questions, will be issued by Addenda and posted within PennBid's

“Documents” tab. Questions received later than ten calendar days prior to the date for opening of Bids, or the deadline, if any, indicated on the Invitation to Bid, may not be answered. **Only questions submitted and answered through PennBid, and by formal written Addenda issued through PennBid will be binding. Oral statements, interpretations, or clarifications will not be binding, or legally effective.** Neither the Owner nor the Engineer shall be responsible for the failure of any Bidder to receive notice of or to read the Addenda posted by the Engineer.

6.02 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

Article 7 - Bid Security

7.01 Each Bid shall be accompanied by Bid security made payable to Owner in an amount of 10 (ten) percent of Bidder's maximum Bid price and in the form of a certified or bank check, an irrevocable letter of credit, or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraphs 5.01, 5.02, and 5.03 of the General Conditions.

- A. All instruments of Bid security shall be valid and remain in effect for at least 120 days from the date of the bid opening.
- B. Substitute Bid Bond forms are not acceptable.
- C. An electronic copy of the Bid security must be submitted with the Bid.

7.02 The Bid security and financial information, if any, of the three apparent lowest responsive and responsible Bidders will be retained until the Successful Bidder has furnished the required Performance and Payment Bonds, and Insurance Certificate, and Successful Bidder and Owner have executed the Agreement.

7.04 Owner may annul the Notice of Intent to Award, if the apparent Successful Bidder fails or refuses to execute and deliver to the Owner the Agreement, together with the required Performance and Payment Bonds or other forms of security, and Insurance Certificate, within the number of calendar days specified in the Notice of Intent to Award. Bidder shall be considered in Default, and the full amount of its Bid Security shall be forfeited.

Article 8 - Contract Time

8.01 The number of calendar days within which, or the date by which the Work shall be substantially completed (the Contract Time) are set forth in the Agreement.

Article 9 - Liquidated and Other Damages

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

Article 10 - Substitutions and “Or Equal” Items

10.01 Bids shall be based on Products and methods covered in the Specifications and shown on the Drawings. When a Product specification includes the name or names of manufacturer(s), Bids shall be based on a Product which: (1) meets all Specification requirements; and (2) is produced by one of the manufacturers specifically named in the Specifications for that particular Product.

- A. Requests for substitutions, “or Equal” for Products or methods other than those specified in the Project Manual, will not be considered prior to the Bid opening date. Refer to Supplementary Conditions Paragraphs SC-6.05.A through SC-6.05.L for procedures to be used in making, and costs to Contractor associated with, such requests after award of the Contract.

Article 11 - Subcontractors

11.01 Article 6, Paragraph 6.06.B of the General Conditions, as amended by Paragraph SC-6.06.B.1 of the Supplementary Conditions, sets forth requirements as to the approval of Subcontractors.

11.02 The Bidder shall submit, with the Bid, a list of proposed Subcontractors on the form supplied with the Bidding Documents.

Article 12 - Bid Form

12.01 The Bid form and other required Bidding Documents and supplements are included under the “Bid” tab at the PennBid website.

12.02 The Bid of an individual must be signed by the individual personally; the individual's signature must be witnessed; and the individual's business address and any business trade name must be stated. The Bid of a partnership must state the names and addresses of all partners, and the partnership business name and address; and it must be signed by all general partners, with the signatures witnessed. The Bid of a corporation must show the State of incorporation and the principal office address, and must be signed by the President or Vice President, with the corporate seal affixed, attested by the Secretary or Assistant Secretary. Bids by limited liability companies must be executed in the limited liability company name and signed by all members. The state of formation and official address of the limited liability company must be shown below the signature lines.

12.03 Bids submitted electronically via PennBid shall use electronic signatures as defined by State of Maryland statute.

12.04 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers and dates of which must be filled in on the Bid Form).

12.05 Within (2) business days after the Bid opening the apparent low Bidder and the next two lowest Bidders shall submit all Bidding Documents in hard copy, showing original

signatures and seals. Bidder(s) shall attach to the Bid Form a copy of the PennBid results in lieu of duplicating the figures manually.

12.06 The address, e-mail, telephone number, and fax number of Bidder, and the name, e-mail, and telephone number of the individual to whom communications regarding the Bid are to be directed, must be shown.

12.07 The Bid Form may call for lump sum prices, unit prices, or a combination of both.

- A. If the Bid form calls for lump sum prices, the Bidder shall state a single lump sum price for the entire Work, or single lump sum prices for each portion of the Work, subject to a lump sum price as set forth in the Bid form, as applicable. Any such lump sum price or prices shall include all the work described in the Contract Documents as being part of the Work.
- B. If the Bid Form calls for unit prices, the Bidder shall state a single unit price for each item to be furnished or work to be done as set forth in the Bid Form. The Bid Form indicates, opposite each item for which a unit price is required, the Engineer's estimated quantity of units of such items which will be required in the prosecution of the Work; and the Bidder shall state in the space provided in the Bid Form the total price for such items, as computed by multiplying such estimated quantity of units of such item by the unit price bid.

12.08 Bid prices shall be all inclusive and shall include, if applicable, all taxes of whatever nature applicable to the Work.

12.09 Owner may be exempt from sales and use taxes for certain items to be incorporated into the Work. Each Bidder shall obtain legal advice to determine how and to what extent the Contractor may utilize the Owner's tax exemption. Owner will provide, at the Contractor's request, documentation required to obtain applicable tax exemptions.

12.10 Submission of prices for all Alternates, if any, is mandatory.

12.11 The documents listed under Paragraph 6 of the Bid Form shall be provided as a single file.

Article 13 – Electronic Submission of Bids via PennBid

13.01 Bids shall be submitted no later than the time and place indicated in the Invitation to Bid.

13.02 The "Bid" tab contains the electronic Bid Form.

- A. For Lump Sum line items, enter the lump sum amount to perform all of the Work as described in the Contract Documents.
- B. For Unit Price line items, enter the per Unit price in the appropriate field; PennBid will automatically calculate the extended price for the listed units of Work.

- C A unit or lump sum price must be provided for all items and alternates listed on the Bid Form.

13.03 All questions located in the “Bid” section of PennBid must be answered.

13.04 To attach the electronic file containing documents described in Paragraph 12.11 above, click on the “Bid” tab and “browse” (middle of the screen). Locate and click on the file. The electronic file will be attached to your bid submission when the “Submit Bid” button is clicked.

13.05 Bidder shall use forms available from the “Documents” section of PennBid.

13.06 Each Bidder is solely responsible for submitting its Bid via PennBid by the time and date of the Bid Opening designated in the Invitation to Bid.

13.07 Verifying Bid Was Submitted: If submitted correctly, an acknowledgement will appear in the middle of the computer screen stating “Your bid has been submitted.”

Article 14 - Modification and Withdrawal of Bids

14.01 Bids may be modified or withdrawn at any time prior to the Bid opening.

14.02 After the Bid opening, Bidder may withdraw its Bid only by complying with applicable Federal, State, or local laws and regulations. Unless prohibited by such applicable laws and regulations, or if there are no applicable laws and regulations, Bidder shall forfeit the entire amount of Bid security upon withdrawal of its Bid.

Article 15 - Opening of Bids

15.01 Upon review of submitted Bids, results will be posted online at PennBid website. Results shown on PennBid website are for information only and do not constitute the issuance of award of a contract. Selection of apparent low Bidder will be made by Owner after careful review of submitted documentation, as described below under Article 17.

Article 16 - Bids to Remain Subject to Acceptance

16.01 Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. The Owner will either award the Contract within the applicable time period or reject all Bids, returning the Bid security to the Bidders. Thirty-day extensions of the date for the award may be made by the mutual written consent of the Owner and the apparent Successful Bidder.

Article 17 - Award of Contract

17.01 Owner reserves the right, without limitation, to reject any or all Bids, which are nonconforming, nonresponsive, unbalanced or conditional, 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 Bidder is unqualified or of doubtful financial ability, or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all irregularities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

17.02 The Owner will resolve discrepancies in the Bidder's mathematical totals, shown on the hard copy of the Bid Form, in favor of the electronically calculated totals shown on PennBid.

17.03 In evaluating Bids, Owner will consider the qualifications of Bidders, if the Bids comply or do not comply with the prescribed requirements, and such Alternates, unit prices, and other data, as may be listed on the Bid Form, or as may be requested by Owner prior to the Notice of Intent to Award.

17.04 In evaluating Bids Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work of which Owner, prior to Notice of Intent to Award, requests their identity. Owner also may consider, where applicable, the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data are required to be submitted prior to the Notice of Intent to Award.

17.05 In evaluating Bids Owner may conduct such investigations, as Owner deems necessary, to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations, to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

17.06 If the Contract is to be awarded, it will be awarded to the lowest responsible, responsive Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

17.07 If the Contract is to be awarded, Owner will give the apparent Successful Bidder a Notice of Intent to Award within the time limits prescribed in Article 16.

17.08 Bidders may be required by Owner, prior to and as a condition of Contract award, to execute and sign documents related to financing of the Project.

17.09 More than one bid from an individual, partnership, corporation, or an association under the same name or different names will not be considered. Reasonable grounds for believing that the Bidder is interested in more than one Bid for the same Work will cause the rejection of all Bids in which such Bidder is interested. Any or all Bids will be rejected if there is any reason for believing that collusion exists among any of the Bidders; participants in such collusion will not be considered in future bidding.

17.10 Alternates, if any, will be considered and selected by Owner and the prices for the selected Alternates will be added to or deducted from the Base Bid price to arrive at an adjusted Bid price. Owner reserves the right to reject or select Alternates regardless of price attached to such Alternates. The adjusted Bid price will be used in comparing Bids and will be the basis for determining the "lowest" of all responsible, responsive Bidders.

Article 18 - Contract Bonds and Insurance

18.01 Article 5 of the General Conditions sets forth Owner's requirements as to Performance and Payment Bonds to be provided by the Contractor. When the apparent Successful Bidder delivers the signed Agreement to Owner, it must be accompanied by the required Performance and Payment Bonds, each in the amount of one hundred percent (100%) of the Contract Price, on the forms provided in the Bidding Documents. **Substitute Bond forms are not acceptable.**

18.02 Article 5 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to insurance to be carried by the Contractor. When the apparent Successful Bidder delivers the signed Agreement to the Owner, it must be accompanied by the required insurance certificate on the latest version of the Acord 25 Certificate of Insurance form. All policies of insurance shown on the Certificate of Insurance shall not be cancelled or materially changed until thirty days prior notice has been given by Contractor to Owner and Engineer and to each additional insured, and shall contain waiver provisions in accordance with General Conditions, Paragraph 5.07.

Article 19 - Signing of Agreement

19.01 When Owner gives a Notice of Intent to Award to the apparent Successful Bidder, it will be accompanied by four unsigned counterparts each of the Agreement (each with a copy of the Bid submission and, if applicable, the List of Proposed Subcontractors attached), Performance and Payment Bonds, or other forms of financial security. Apparent Successful Bidder shall sign and deliver to the Owner, within the calendar days specified in the Notice of Intent to Award, all counterparts of the Agreement accompanied by the executed Performance and Payment Bonds (with a Power-of-Attorney certificate attached to each), or other forms of financial security and four originals of the required insurance certificate(s).

- A. Successful Bidder(s)/Contractor(s) shall be responsible for all costs resulting from reviewing by Engineer, or others, of non-conforming, or incomplete Contract Document submissions prior to execution of an Agreement. Costs shall be deducted by Change Order from Contractor's first Application for Payment.
- B. By signing the Agreement, the Contractor agrees to hold the prices Bid for materials and equipment throughout the Project.

19.02 If the Owner finds the documents submitted by the apparent Successful Bidder acceptable, it will, within 15 calendar days after receipt of such documents, complete the signing of the Agreement and submit two fully executed counterparts and accompanying documents to the Contractor.

19.03 If the Owner elects to issue a Notice to Proceed, such notice will accompany the fully executed copies of the Agreement. If a Notice to Proceed is not issued, the Contract Times will commence to run as specified in General Conditions, Paragraph 2.03, as amended by Supplementary Conditions Paragraph SC-2.03.

19.04 Owner may annul the Intent to Award, if the apparent Successful Bidder fails or refuses to execute and deliver to the Owner the Agreement, together with the required Performance and Payment Bonds, Insurance Certificate, and any other required Contract Document(s), within the number of calendar days specified in the Notice of Intent to Award; Bidder shall be considered in Default, and the full amount of its Bid Bond shall be forfeited.

Article 20 - Pre-Bid Meeting and Site Visit

20.01 A pre-bid meeting and site visit will be held at the time and place set forth in the Invitation to Bid. Engineer will transmit via PennBid to all prospective Bidders present at the pre-bid meeting and site visit such Addenda, as Engineer considers necessary in response to questions arising at the meeting. Attendance at the pre-bid meeting and site visit is not mandatory; however, attendance is encouraged. It is the responsibility of the Contractor to visit the site prior to submitting a bid.

Article 21 - Regulatory and Funding Agency Requirements

21.01 STEEL PRODUCTS PROCUREMENT ACT: In accordance with the State Finance and Procurement Article, Section 17-303, Annotated Code of Maryland, every public agency shall require that every contract document for the construction, reconstruction, alteration, repair, improvement or maintenance of Public Works contain a provision that, if any steel products are to be used or supplied in the performance of the contract, only steel products as herein defined shall be used or supplied in the performance of the contract or any subcontract thereunder.

- A. “Public Works” are defined as any structure, building, highway, waterway, street, bridge, transit system, airport, or other betterment, work or improvement whether of a permanent or temporary nature and whether for governmental or proprietary use.
- B Steel products are defined as products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations, from steel made in the United States by the open-hearth, basic hearth, basic oxygen, electric furnace, Bessemer or other steel making process.
- C United States is defined as the United States of America and includes all territory, continental or insular, subject to the jurisdiction of the United States.

END OF INSTRUCTIONS TO BIDDERS

DOCUMENT 00300

BID FORM

BIDDER (Name and Address):

PROJECT IDENTIFICATION

PARKING LOT IMPROVEMENT

CONTRACT IDENTIFICATION:

General Construction

THIS BID IS SUBMITTED TO:

TOWN OF INDIAN HEAD
4195 Indian Head Highway
Indian Head, MD 20640

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 Bidding Documents to perform and furnish all Work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time(s) and in accordance with the other terms and conditions of the Bidding Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. Thirty-day extensions of the date for the award may be made by the mutual written consent of the Owner and the apparent Successful Bidder. Bidder agrees, if required by Owner prior to and as a condition of Contract award, to execute and sign any documents related to financing of the Project. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Documents within 15 calendar days after the date of Owner's Notice of Intent to Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - 3.1 Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- 3.2 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, performance, and furnishing of the Work;
- 3.3 Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.
- 3.4 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 or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.2.1 of the General Conditions. Bidder acknowledges that such reports and drawings are not Bidding Documents or 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 Bidding Documents with respect to Underground Facilities at or contiguous to the site. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all 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, and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. 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 in accordance with the times, price, and other terms and conditions of the Bidding Documents and Contract Documents.
- 3.5 Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted as indicated in the Bidding Documents and Contract Documents.
- 3.6 Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents and Contract Documents.
- 3.7 Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder, and the Bidding Documents and 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.
- 3.8 This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation 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 person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

4. Bidder will complete the work for the unit prices and lump sum prices given below:

	<u>Description</u>	<u>Unit</u>	<u>Est. Qty</u>	<u>Bid Unit Price (\$)</u>	<u>Extended Price in Figures (\$)</u>
1.	Clearing and Grubbing	AC	0.21	\$_____	\$_____
2.	Stripping and Stockpiling of Existing Topsoil	LS	1	\$_____	\$_____
3.	Cut, Fill and Rough Grade	LS	1	\$_____	\$_____
4.	Construct Infiltration Trench System	SY	560	\$_____	\$_____
5.	Install New Pervious Concrete Parking	SY	560		
6.	Place Thermoplastic Parking Markings	LS	1	\$_____	\$_____
7.	Furnish and Install/Relocate/Remove Signs as shown on plan	LS	1	\$_____	\$_____
8.	Install Concrete Sidewalk and Pad	SY	25	\$_____	\$_____
9.	Install Bike Rack	LS	1	\$_____	\$_____
10.	Install Boardwalk Connection	LS	1	\$_____	\$_____
11.	Install Evergreen Shrub Screening	EA	20	\$_____	\$_____
12.	Place Top Soil, Seeding, Final Grading, Restoration	LS	1	\$_____	\$_____
13.	Remove and Reinstall Wooden Fence with Extension	LS	1	\$_____	\$_____
14.	Erosion and Sedimentation Control	LS	1	\$_____	\$_____
15.	Remove and Reset Existing Street Light	EA	1	\$_____	\$_____
16.	Miscellaneous Unclassified Excavation	CY	10	\$_____	\$_____
17.	Miscellaneous Aggregate Backfill	CY	10	\$_____	\$_____
18.	Miscellaneous Concrete	CY	5	\$_____	\$_____

Quantities given above and those given under the Alternates are not guaranteed. Final payment will be based on actual quantities. Any difference between estimated and final quantities will not be considered reason for increase of unit price. Items 16 through 18 inclusive, are contingency items and payment will not be made without authorization by Engineer.

Total of Items 1 through 18: BASE BID PRICE (Figures) \$_____.

Total of Items 1 through 18: BASE BID PRICE (Words) \$_____.

5. Bidder agrees that the Work will be substantially complete on or before the dates or within the number of calendar days indicated in the Agreement.

Bidder accepts the provisions of the Agreement as to liquidated or other damages in the event of failure to complete the Work on time.

6. The following documents are attached to and made a condition of this Bid:

6.1 Required Bid Security in the form of _____

6.2 Experience Questionnaire ; Document 00400.

6.3 List of Proposed Subcontractors; Document 00450.

6.4 Non-Collusion Affidavit; Document 00460

6.5 Bidder's and its Subcontractor(s) proof of qualification to do business in the State of Maryland or covenant to obtain such qualification prior to and as a condition for award of a Contract (for Bidder/Subbidder(s) not incorporated in Maryland).

7. Communications concerning this Bid will be addressed to (Bidder's Contact Person):

Phone: () _____
Fax: () _____
Company Email Address: _____

8. The terms used in this Bid which are defined in the General Conditions included as part of the Bidding Documents have the meanings assigned to them in the General Conditions.
9. Bidder acknowledges that the Bid Price is based on Products and methods described and named in the Drawings and the Specifications.

SUBMITTED on _____, 20_____.

(If Bidder is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Bidder is a Partnership - All General Partners Must Sign)

Name of Partnership

Address of Partnership

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

(If Bidder is a Corporation)

Attest:

Name of Corporation

Signature of Secretary or
Assistant Secretary

Address of Principal Office

(Corporate Seal)

State of Incorporation

Signature of
President or Vice President

Type or print name below each signature.

State here the names and addresses of all partners, if a partnership, or of three principal officers, if a corporation.

END OF BID FORM

DOCUMENT 00350

BID BOND

BIDDER (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

TOWN OF INDIAN HEAD
4195 Indian Head Highway
Indian Head, MD 20640

Project Bid Date:

Project Identification:

PARKING LOT IMPROVEMENT

Contract Identification:

General Construction

BOND

Date:

Amount:

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 full-face amount of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents, the executed Agreement required by the Bidding Documents, and any Performance Bonds, Payment Bonds, Certificates of Insurance, or other documents required by the Bidding Documents and Contract 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 Bonds, Payment Bonds, Certificates of Insurance, or other documents required by the Bidding Documents and Contract 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).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt of 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, provided that the time for issuing Notice of Award shall not in the aggregate exceed 120 days from Bid opening 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 opening 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. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the first page 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 of 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 the Bond conflicts with any applicable provision of 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 terms used in this Bid Bond which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

(If Bidder is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Bidder is a Limited Liability Company – All Members Must Sign)

Name of Company

Address of Company

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

(If Bidder is a Partnership - All General Partners Must Sign)

	_____ Name of Partnership
	_____ Address of Partnership
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner

(If Bidder is a Corporation)

Attest:

	_____ Name of Corporation
_____ Signature of Secretary or Assistant Secretary	_____ Address of Principal Office
(Corporate Seal)	_____ State of Incorporation
	_____ Signature of President or Vice President

Type or print name below each signature.

(Corporation Surety)

Name of Corporation

Address of Office

Signature of Witness

Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

NOTE: Substitute Bid Bond Form is not acceptable. Failure to submit Bond on this form will be reason for rejection of Bid.

END OF BID BOND

DOCUMENT 00400

EXPERIENCE QUESTIONNAIRE

PROJECT IDENTIFICATION : PARKING LOT IMPROVEMENT

CONTRACT IDENTIFICATION: General Construction

SUBMITTED TO: TOWN OF INDIAN HEAD
4195 Indian Head Highway
Indian Head, MD 20640

BY: _____ (-Corporation
(-Partnership
(-An Individual

PRINCIPAL OFFICE ADDRESS _____

The signer of this questionnaire attests to the truth and accuracy of all statements and of all answers to interrogatories hereinafter made.

1. What type of business is Bidder's company? _____

2. How many years has Bidder's company been performing work as a Contractor, or Subcontractor of the type required for this Project? _____

3. Provide information on all service contracts currently in progress.

Contract Amt.	Type of Work (±)	% Comp leted	Name and Address of Owner(*)	Engineer/ Architect(*)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(*) Provide name of contact person.

(±)Identify if work was performed as a Contractor or Subcontractor

4. What projects, comparable to this Project, has Bidder's company completed within the last five (5) years?

Contract Amt.	Type of Work (±)	When Completed	Name and Address of Owner (*)	Engineer/ Architect (*)

(*) Provide name of contact person.

(±)Identify if work was performed as a Contractor or Subcontractor

5. Has Bidder's company ever defaulted on a contract, or failed to complete a contract? _____

If yes, where and why? _____

6. Has Bidder's company ever been debarred? If yes, when, why and by which agency, or political subdivision?

7. Has the Bidder, or any of the company's executives ever been found guilty of a felony? If yes, when and why?

8. List names, addresses, and phone numbers of individuals, or companies referenced in Item 4, that may be contacted by Owner, or Engineer to obtain references.

9. What is the construction experience of the principal individuals of Bidder's company?

Individual's Name	Present Position or Office	Magnitude and Type of Work	In What Capacity?

STATE OF _____

COUNTY OF _____

_____ being duly sworn deposes and
says that (s)he is _____ of _____
Title Name of Company

and attests that the answers to the foregoing questions and all statements therein are true and correct.

Signature

Sworn to before me this _____ Day of _____, 20 _____

My commission expires

Signature of Notary Public

Type or print name below each signature.

END OF EXPERIENCE QUESTIONNAIRE

DOCUMENT 00450

LIST OF PROPOSED SUBCONTRACTORS

PROJECT IDENTIFICATION: **PARKING LOT IMPROVEMENT**

CONTRACT IDENTIFICATION: **General Construction**

SUBMITTED TO: **TOWN OF INDIAN HEAD**
4195 Indian Head Highway
Indian Head, MD 20640

List proposed subcontracts as required in Instructions to Bidders.

Description of Subcontract	Subcontractor's Name	Subcontractor's Address

Date 2025

Signature

Typed or Printed Name

Title

NOTE: This List of Proposed Subcontractors must be submitted with the Bid, and failure to submit will be reason for rejection of the Bid.

END OF LIST OF SUBCONTRACTORS

DOCUMENT 00460

NON-COLLUSION AFFIDAVIT

I state that I am _____ of _____
(title) (firm)

and that I am authorized to make this affidavit on behalf of my firm and its owners, directors, and officers. I am the person responsible in my firm for the prices and the amount of this Bid.

I state that:

(1) The prices and amount of this Bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder, or potential bidder.

(2) Neither the price nor the amount of this Bid, and neither the approximate price nor approximate amount of this Bid, have been disclosed to any other firm or person who is a bidder or a potential bidder, and they will not be disclosed before Bid opening.

(3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this Bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.

(4) The Bid of my firm is in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.

(5) _____, its affiliates, subsidiaries, officers
(name of firm)

directors and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy or collusion with respect to bidding on any public contract except as follows:

I state that _____ understands and acknowledges
(name of firm)

the above representations are material and important and will be relied upon by the Owner in awarding the contract(s) for which this Bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the Owner the true facts relating to the submission of bids for this Contract.

(name of firm)

By:

Title

Sworn to before me this _____ Day of _____, 20 ____

My commission expires:

Signature of Notary Public

Type or print name below each signature.

END OF NON-COLLUSION AFFIDAVIT

DOCUMENT 00500

AGREEMENT

This Agreement made and entered into this _____ day of _____, 20____
by and between **TOWN OF INDIAN HEAD**
hereinafter called the Owner,

and

A Corporation known as _____
organized and existing under the laws of the State
of _____

A Partnership known as _____
consisting of the following partners _____

a Limited Liability Company known as _____
consisting of the following partners/members _____

An Individual, _____, trading as _____

whose address is _____
City of _____
State of _____, hereinafter called the Contractor,

WITNESSETH, that the parties hereto for the consideration stated do mutually agree as follows:

ARTICLE 1 - SCOPE OF WORK

1.1 The Contractor agrees to furnish all labor, superintendence, materials, necessary equipment, and other utilities and facilities for, perform all work necessary for or incidental to, and perform all other obligations imposed by this Agreement for, the complete Work in connection with **PARKING LOT IMPROVEMENT** herein called for, all in strict accordance with the Contract Documents as prepared by ARRO Consulting, Inc., acting as and entitled the Engineer in this Agreement.

1.2 The Contract Documents are defined in the General Conditions. The Contract Documents comprise the entire Agreement between Owner and Contractor and are incorporated in this Agreement and made a part hereof. The Contract Documents may only be altered, amended, or repealed as described in Paragraph 3.04 of the General Conditions.

1.2.1 In the event of a discrepancy among Contract Documents, the provisions of this Agreement (Document 00500) and the provisions of the Supplementary

Conditions (Document 00800) shall take precedence over the Standard General Conditions.

1.3 The Drawings for the Work covered under this Agreement consist of the following sheets:

Sheet No.	Title
1 of 8	TITLE SHEET
2 of 8	EXISTING CONDITION AND DEMOLITION PLAN
3 of 8	PROPOSED SITE CONDITIONS PLAN
4 of 8	PROPOSED GRADING AND UTILITY PLAN
5 of 8	SITE DETAILS
6 of 8	EROSION AND SEDIMENT CONTROL PLAN
7 of 8	EROSION & SEDIMENT CONTROL DETAILS
8 of 8	EROSION & SEDIMENT CONTROL NOTES AND CONSTRUCTION SEQUENCE

ARTICLE 2 - CONTRACT TIMES

- 2.1 The Work shall be substantially completed on or before September 8, 2025, and must be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before September 29, 2025.
- 2.2 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 Paragraph 2.1 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 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 \$500.00 for each calendar day that expires after the time specified in Paragraph 2.1 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the time specified in Paragraph 2.1 above for completion and readiness for final payment or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500.00 for each calendar day that expires after the time specified in Paragraph 2.1 above for completion and readiness for final payment.
- 2.3 Additional Damages: In addition to the liquidated damages amount(s) specified above under Article 2, Contractor also agrees to reimburse Owner for all administrative, legal (including litigation), engineering, and construction observation costs associated with Contractor's failure to meet any deadline specified above under Article 2, and all actual damages that may result from Contractor's defective work.

- 2.4 Alternate Damages: The Owner, at its option, may waive liquidated damages as provided in Paragraph 2.2 above and elect to recover from Contractor Owner's actual damages for such delay. Actual damages may include, without limitation, any fines or penalties imposed on Owner by any regulatory body plus all actual damages suffered by Owner as a result of such delay including, without limitation, loss of revenue, engineering fees and consultants fees, construction observation fees, and legal fees (including litigation) incurred by Owner as a result of such delay.

ARTICLE 3 - CONTRACT PRICE, PAYMENT, AND RETAINAGE

- 3.1 The Owner shall pay, and the Contractor shall receive and accept as full payment for the performance of the Contractor's obligations hereunder, the price(s) stipulated in the Bid Form hereto attached and in the manner as specified in the General Conditions subject to the retainage provisions set forth below. Stipulated prices (including those for Contingency Items) in the Bid Form shall be all inclusive. They shall include furnishing all labor, superintendence, necessary equipment, utilities and facilities, furnishing and installing all Products described in the Drawings and Specifications, performing all work necessary for, or incidental to completing the Work, Contractor's overhead, profit and burden costs and performing all other obligations imposed by this Agreement.
- 3.2 Retainage
- 3.2.1 The Owner shall withhold ten (10) percent of the amount of approved Applications for Payment until the Work is 50% completed. When the Work is 50% completed, one-half of the amount retained by Owner shall be returned to Contractor; provided that the Engineer approves the payment of this portion of the retained amount; and, provided further, that the Contractor is making satisfactory progress and there is no specific cause for greater withholding.
- 3.2.2 After the Work is 50% complete, and up to the date of Substantial Completion, subsequent approved Applications for Payment shall be paid by Owner subject to withholding by Owner of five (5) percent of each such approved Application for Payment so that the total amount withheld from Contractor shall not exceed five percent of the value of completed Work based on approved Applications for Payment.
- 3.2.3 After the Work is Substantially Complete, in accordance with General Conditions Paragraph 1.44, as amended by Supplementary Conditions Paragraph SC-1.44, subsequent approved Application(s) for Payment shall be paid, by Owner, subject to withholding, by Owner, of an amount equal to one and one-half times the amount required to complete any uncompleted minor items, provided there is no specific cause for greater withholding.
- 3.2.4 In the event that a dispute arises between the Owner and the Contractor, which dispute is based on increased costs incurred by one contractor occasioned by delays or other actions of another contractor, additional retainages in the sum of one and one-half times the amount of any possible liability may be withheld by

the Owner from the Contractor until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the contractor causing the additional claim furnishes a Bond satisfactory to Owner to indemnify Owner against the claim.

- 3.3 Final Payment. Upon final completion and acceptance of the Work in accordance with Paragraphs 14.12 and 14.13 of the General Conditions, Owner shall pay the remainder of the Contract Price less the amount of liquidated and/or other damages and the amount of any unresolved claims, which have been filed against the Owner in connection with the Work, as recommended by Engineer in accordance with said Paragraph 14.07.
- 3.4 Interest. The final payment if not paid when due in accordance with Paragraph 14.07 of the General Conditions shall bear interest at the rate of 10 percent per annum, or when the Owner has issued bonds to finance the Project, at the rate of interest of the bond issue, whichever is less. No interest will be paid on progress payments.

ARTICLE 4 - CONTRACTOR'S REPRESENTATIONS

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

- 4.1 Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- 4.2 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, performance, and furnishing of the Work.
- 4.3 Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.
- 4.4 Contractor 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 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. 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. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional 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, and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

- 4.5 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.
- 4.6 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.
- 4.7 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 5 - MISCELLANEOUS

- 5.1 Terms used in this Agreement, which are defined in Article 1 of the General Conditions, as modified by the Supplementary Conditions, will have the meanings indicated in the General Conditions.
- 5.2 No assignment by a party hereto of any rights under or interests in the Contract Documents 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.
- 5.3 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.
- 5.4 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 provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

- 5.5 Paragraph SC-6.05.L of the Supplementary Conditions provides for charging the Contractor for costs associated with any request for substitution made by the Contractor.
- 5.6 Section 01300 of the General Requirements provides for charging the Contractor for costs associated with review of any submittals which are classified as excess re-submittals; that is, any re-submittal beyond the first. Contractor agrees to compensate Owner for such charges by allowing deductions from Contractor's progress payments.
- 5.7 Contractor agrees to compensate Owner for such charges incurred under Paragraphs 5.5 and 5.6 above.
- 5.8 No disruption to service, except for tie-in of new water house connection shall occur to customers at any time during the completion of this project.

ARTICLE 6 – DISPUTE RESOLUTION

- 6.1 All claims, disputes and other matters in question between Owner and Contractor arising out of, or relating to, the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by General Conditions Paragraph 14.07) shall be settled by filing a complaint in the Court of Common Pleas in the State of Maryland, and litigating said matters in said forum.
- 6.2 The Contractor shall continue the Work and maintain the Progress Schedule, during all disputes, or disagreements with Owner in accordance with General Conditions Paragraph 6.18, unless otherwise directed by the Owner.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

(If Contractor is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

	_____ Name of Company
	_____ Address of Company
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

	_____ Name of Partnership
	_____ Address of Partnership
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner

(If Contractor is a Corporation)

Attest:

Name of Corporation

Signature of Secretary or
Assistant Secretary

Address of Principal Office

(Corporate Seal)

State of Incorporation

Signature of
President or Vice President

(Owner)

Attest:

TOWN OF INDIAN HEAD

4195 Indian Head Highway
Indian Head, MD 20640

Owner's Address

Signature

Signature

Title

Title

Type or print name below each signature.

END OF AGREEMENT

DOCUMENT 00610
PERFORMANCE BOND

CONTRACTOR (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

TOWN OF INDIAN HEAD
4195 Indian Head Highway
Indian Head, MD 20640

AGREEMENT

Amount:

Project Identification:

PARKING LOT IMPROVEMENT

Contract Identification:

General Construction

BOND

Date:

Amount:

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 Work as defined by the Agreement, which is incorporated herein by reference.
2. If the Contractor performs the Work, the Surety and the Contractor shall 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 its address described in Article 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 Work. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Work, 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 Work. 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 the Surety in accordance with the terms of the Agreement or to a contractor selected to perform the Work in accordance with the terms of the Agreement with the Owner.
4. When the Owner has satisfied the conditions of Article 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 Work; or
 - 4.2 Undertake to perform and complete the Work 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 Work, 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 Work, and pay to the Owner the amount of damages as described in Article 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's 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 Article 4 within fifteen (15) business days of Owner's satisfaction of the conditions of Article 3, or within twenty-four (24) hours after notice, where notice states that immediate action by the Surety is necessary to safeguard life or property, 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 Work, 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 Agreement, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Agreement. To the 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 Work, the Surety is obligated without duplication for:

- 6.1 The responsibilities of the Contractor for:
 - 6.1.1 Completion of the Work, as defined in Article 1 of the General Conditions.
 - 6.1.2 Correction of defective work during the Correction Period, as defined in General Conditions Paragraphs 13.07.A through 13.07. E.
- 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 Article 4; and
- 6.3 Liquidated damages, or if no liquidated damages are specified in the Agreement, 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 Work, 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 Agreement 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 and within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Article 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 front page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be 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 Agreement 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 Agreement.

- 12.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Agreement.
- 12.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Agreement or to perform and complete or comply with the other terms thereof.
- 12.4 The terms used in this Performance Bond which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

(If Contractor is an Individual)

Signature of Witness

Signature of Individual

Trading and doing business as:

Name of Business

Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

Name of Company

Address of Company

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

Signature of Witness

Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

Name of Partnership

Address of Partnership

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

Signature of Witness

Signature of Partner

(If Contractor is a Corporation)

ATTEST:

Name of Corporation

Signature of Secretary or
Assistant Secretary

Address of Principal Office

(CORPORATE SEAL)

State of Incorporation

Signature of
President or Vice President

Type or print name below each signature.

(Corporation Surety)

Name of Corporation

Address of Office

Signature of Witness

Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

**NOTE: Substitute Performance Bond Form is not acceptable. Failure to submit
Bond on this form will be reason for rejection of Bid.**

END OF PERFORMANCE BOND

DOCUMENT 00620

PAYMENT BOND

CONTRACTOR (Name and Address):

SURETY (Name and Address):

OWNER (Name and Address):

TOWN OF INDIAN HEAD

4195 Indian Head Highway
Indian Head, MD 20640

AGREEMENT

Amount:

Project Identification:

PARKING LOT IMPROVEMENT

Contract Identification:

General Construction

BOND

Date:

Amount:

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 Work as defined by the Agreement, 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 Work, provided the Owner has promptly notified the Contractor and the Surety (at the address shown above) 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 address shown on page one) 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:

- 4.2.1 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
- 4.2.2 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 has indicated the claim will be paid directly or indirectly; and
- 4.2.3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address shown on page one) 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 Article 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 Article 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 60 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.
- 6.3 The Surety's failure to discharge its obligations under this Section 6 shall not be deemed to constitute a waiver of defenses the Surety or the Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this Section 6, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant under this Section 6.

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 Agreement shall be used for the performance of the Work 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 Work 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 Work. 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 Agreement 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 Paragraphs 4.1 or 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 Agreement, 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 address shown on the page one. 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 front page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction 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 by 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 Work. 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 Work, 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 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Agreement or to perform and complete or comply with the other terms thereof.

15.3 The terms used in this Payment Bond which are defined in the General Conditions have the same meaning assigned to them in the General Conditions.

(If Contractor is an Individual)

_____ Signature of Witness	_____ Signature of Individual
	Trading and doing business as:
	_____ Name of Business
	_____ Address of Business

(If Contractor is a Limited Liability Company – All Members Must Sign)

	_____ Name of Company
	_____ Address of Company
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member
_____ Signature of Witness	_____ Signature of Member

(If Contractor is a Partnership - All General Partners Must Sign)

	_____ Name of Partnership
	_____ Address of Partnership
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner
_____ Signature of Witness	_____ Signature of Partner

(If Contractor is a Corporation)

ATTEST:

	_____ Name of Corporation
_____ Signature of Secretary or Assistant Secretary	_____ Address of Principal Office
(CORPORATE SEAL)	_____ State of Incorporation
	_____ Signature of President or Vice President

Type or print name below each signature.

(Corporation Surety)

Name of Corporation

Address of Office

Signature of Witness

Signature of Attorney-in-fact

Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

Type or print name below each signature.

NOTE: Substitute Payment Bond Form is not acceptable. Failure to submit Bond on this form will be reason for rejection of Bid.

END OF PAYMENT BOND

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations applicable where the Project is located. Amendments made to this document, by the Engineer or others, are described in the Supplementary Conditions of the Contract. This document is to be used in conjunction with the Supplementary Conditions of the Contract.

(*) Indicates General Conditions Article/Paragraph which has been amended, in whole or in part, by the Supplementary Conditions. Selection of Supplementary Conditions Paragraphs is Project driven; i.e. not all amended Articles/Paragraphs are applicable to every Project.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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and

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1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

Associated General Contractors of America
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308
(703) 548-3118
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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

* 1.01 *Defined Terms*

*A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
- *8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
- *12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and

- other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- *27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
- *34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
- *36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
- *44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

*1.01.A.52 through 1.01.A.57.

1.02 Terminology

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

B. *Intent of Certain Terms or Adjectives:*

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

C. *Day:*

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

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final

payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

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

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

Work.

*4.

* 2.02 *Copies of Documents*

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

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

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

2.04 *Starting the Work*

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

* 2.05 *Before Starting Construction*

*A. Preliminary Schedules: Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

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

2. a preliminary Schedule of Submittals; and

*3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of

*B.

* 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

*A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

*B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

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

3.02 Reference Standards

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

Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

***3.03 Reporting and Resolving Discrepancies**

A. Reporting Discrepancies:

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

***B. Resolving Discrepancies:**

- *1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall

take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

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

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and

Engineer and specific written verification or adaptation by Engineer.

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

3.06 *Electronic Data*

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

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must

comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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

* 4.02 *Subsurface and Physical Conditions*

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

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

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

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

employed by Contractor, and safety precautions and programs incident thereto; or

- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or
- 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. *Possible Price and Times Adjustments:*

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

- a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
- b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

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

- a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
- b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

* 4.04 *Underground Facilities*

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

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

**3.*

B. Not Shown or Indicated:

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the

Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

4.05 Reference Points

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

4.06 Hazardous Environmental Condition at Site

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous

Environmental Conditions that have been identified at the Site.

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

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

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

- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with

Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the

scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

* 5.01 *Performance, Payment, and Other Bonds*

- *A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
 - *1.
- *B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published

in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

*1.

- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

*D.

5.02 *Licensed Sureties and Insurers*

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

* 5.03 *Certificates of Insurance*

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

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

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

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

* 5.04 *Contractor's Insurance*

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

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of

tangible property wherever located, including loss of use resulting therefrom; and

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

*B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

- a. Such insurance shall remain in effect for two years after final payment.
- b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

*C.

*5.05 *Owner's Liability Insurance*

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

* 5.06 *Property Insurance*

- *A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by

enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
5. allow for partial utilization of the Work by Owner;
6. include testing and startup; and
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

*B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

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

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

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

* 5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the

rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

*B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

*3.

*C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

**5.08 Receipt and Application of Insurance Proceeds*

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

thereof, and the Work and the cost thereof covered by an appropriate Change Order.

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

5.09 Acceptance of Bonds and Insurance; Option to Replace

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

5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage

necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

***6.01 Supervision and Superintendence**

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

*1., *2. & *3.

*** 6.02 Labor; Working Hours**

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

*1. & *2.

6.03 Services, Materials, and Equipment

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

6.04 Progress Schedule

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

* 6.05 *Substitutes and “Or-Equals”*

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

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

*a. in the exercise of reasonable judgment Engineer determines that:

- *1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
- *2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
- *3) it has a proven record of performance and availability of responsive service.

*b. Contractor certifies that, if approved and incorporated into the Work:

- *1) there will be no increase in cost to the Owner or increase in Contract Times; and

- *2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

*2. *Substitute Items:*

*a. If in Engineer’s sole discretion an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

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

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

*d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

*1) shall certify that the proposed substitute item will:

- *a) perform adequately the functions and achieve the results called for by the general design,
- *b) be similar in substance to that specified, and c) be suited to the same use as that specified;

*2) will state:

- *a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor’s achievement of Substantial

Completion on time,

- *b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - *c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- *3) will identify:
- *a) all variations of the proposed substitute item from that specified, and
 - *b) available engineering, sales, maintenance, repair, and replacement services; and
- *4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

*B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

*C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized

until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

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

*E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

*G. - *L.

* 6.06 *Concerning Subcontractors, Suppliers, and Others*

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

*B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier,

or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

*1.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

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

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

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

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

*1.

6.07 *Patent Fees and Royalties*

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

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other

dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

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

* 6.08 *Permits*

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

*B., *C. & *D.

* 6.09 *Laws and Regulations*

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

*1. – *7.

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

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

* 6.10 *Taxes*

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

* 6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

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

*4.

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

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

*1.

- *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.

*1. & *2.

6.12 Record Documents

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during

construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

* 6.13 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

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

- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- *C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

*1.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

* 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss.

Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

*B. & *C.

6.17 *Shop Drawings and Samples*

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

1. *Shop Drawings:*

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

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent

submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

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

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

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

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any

disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

* 6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- *C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.
- *8.

* 6.20 *Indemnification*

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

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

*** 7.01 Related Work at Site**

- *A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - *1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - *2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's

failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

* 7.02 *Coordination*

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

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

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

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

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

* 7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

*D.

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

*8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

* 8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

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.

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

8.12 *Compliance with Safety Program*

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

*8.13 *Resident Project Representative*

- *A.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

* 9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the

Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

* 9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order

justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

- *A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

*1., *2. & *3.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques,

sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

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

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

* 10.01 *Authorized Changes in the Work*

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

- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

*C.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 Notification to Surety

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

10.05 Claims

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;

- 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
 - E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
 - F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

*11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not

employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in

discharge of duties connected with the Work.

- b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
- c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any

Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or

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

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

**6.*

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

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

** 11.02 Allowances*

**A.* It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

**B. Cash Allowances:*

**1.* Contractor agrees that:

- *a.* the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- *b.* Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been

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

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.

**C. Contingency Allowance:*

- *1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

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

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

** 12.01 Change of Contract Price*

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

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

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

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

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

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

- *1. a mutually acceptable fixed fee; or

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

** 11.03 Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

*C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

*D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

- 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
- 2. there is no corresponding adjustment with respect to any other item of Work; and
- 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner

- a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
- b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

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

an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

* 12.03 *Delays*

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

*E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 Notice of Defects

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

13.02 Access to Work

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

** 13.03 Tests and Inspections*

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

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

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph

13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

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

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

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

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

13.04 Uncovering Work

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

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction

or removal (including but not limited to all costs of repair or replacement of work of others).

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

* 13.07 *Correction Period*

- *A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- *C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work,

the correction period for that item may start to run from an earlier date if so provided in the Specifications.

- *D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- *E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.
- *F. & *G.

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected

Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

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

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

* 14.02 *Progress Payments*

*A. *Applications for Payments:*

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

*4.

*B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.
 - *e.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
- *5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- C. *Payment Becomes Due:*
- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.
- D. *Reduction in Payment:*
- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
 - 2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
 - 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by

Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

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

* 14.04 *Substantial Completion*

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

to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

* 14.05 *Partial Utilization*

- *A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - *1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - *2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - *3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer

will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

- *4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 Final Inspection

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

* 14.07 Final Payment

*A. Application for Payment:

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

- c. a list of all Claims against Owner that Contractor believes are unsettled; and
- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

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

B. Engineer's Review of Application and Acceptance:

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

C. *Payment Becomes Due:*

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

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

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

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

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

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
 1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

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

15.03 Owner May Terminate For Convenience

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without

prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 Contractor May Stop Work or Terminate

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum

finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

***ARTICLE 16 – DISPUTE RESOLUTION**

16.01 *Methods and Procedures

- *A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- *B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- *C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - *1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - *2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - *3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

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

*** 17.02 *Computation of Times***

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

* 17.07 *Resident Project Representative Responsibilities and Authority*

DOCUMENT 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

SC-1.01.A

Add the following new *Defined Terms* to General Conditions Paragraph 1.01.A:

52. *Consultant* – A person, firm, or corporation having a contract with Owner or Engineer to furnish services as Owner's or Engineer's independent professional associate with respect to the Project and who is identified as such in the Supplementary Conditions.
53. *Emergency* – An occurrence which in the opinion of the Owner, the Owner's Representative, or the Contractor requires immediate attention by the Contractor and for which written notice to the Contractor, or the Owner, due to the urgency of the occurrence, cannot be issued within the time stipulated by the General Conditions.
54. *Imminent Danger* - Any conditions or practices in any place of employment, which are such that a danger exists, which could reasonably be expected to cause death or serious physical harm to a person immediately or before the imminence of such danger can be eliminated.
55. *Mobilization/Demobilization* - This work consists of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the Work required under the Contract at the time of award. It does not include mobilization and demobilization of Contractor's subcontractors, or for specific items of the Work for which payment is provided elsewhere in the Contract. Mobilization shall not be considered as work in fulfilling the Contract requirements for commencement of the Work.
 - a. Mobilization shall include all activities and associated costs for transportation of Contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary facilities for the Contractor's and others' (in case of multiple Contracts) operations at the site.

- b. Demobilization shall include all activities and costs for removal and transportation from the site, at completion of the Work, of personnel, equipment and supplies no longer required, or included in the Contract; including the disassembly, removal and site cleanup of offices, buildings, and other facilities assembled on the site specifically for performance of the Work.
- 56. *Products* – New materials, machinery, components, equipment, fixtures, systems, and any other item which will become or has become a permanent physical portion of the Work. The term “Products” may also include materials, equipment, or components removed from existing facilities that may, if specifically permitted by the Contract Documents, be re-used in the Work. The term “Products” does not include machinery and equipment used for preparation, fabrication, conveying, or erection of the Work.
- 57. *Attachment(s)* – Any documentation, appended to a contract or incorporated by reference, which does not establish a requirement for deliverables and is for “*Information Only.*”
- 58. *Exhibit(s)* – Any documentation, referred to in a contract, which is attached and establishes requirements for deliverables. The term shall not be used to refer to any other kind of attachment to a contract.

SC-1.01.A.8

Delete General Conditions Subparagraph 1.01.A.8 in its entirety.

SC-1.01.A.12

Delete General Conditions Paragraph 1.01.A.12 in its entirety and insert the following in its place:

- 12. *Contract Documents* The Contract Documents, which comprise the entire agreement between OWNER and CONTRACTOR, and which are incorporated in the Agreement by reference, and are made a part of it, consist of the Agreement, together with all written amendments,, Addenda, Contractor’s Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Intent to Award), which is attached to the Agreement, Performance, Payment and other required Bonds, the General Conditions, the Supplementary Conditions, any special conditions dictated by a funding or other regulatory agency, the Specifications, the Drawings (which are identified in the Agreement), Notice to Proceed, Change Orders, Work Change Directives, Field Orders and Engineer’s written interpretations and clarifications issued pursuant to General Conditions Paragraphs 3.04.A, 3.04.B.1 and 3.04.B.3 on or after the Effective Date of the Agreement. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

SC-1.01.A.27

Amend the defined term “Notice of Award” to read “Notice of Intent to Award.”

SC-1.01.A.34

Delete General Conditions Subparagraph 1.01.A.34 in its entirety and insert the following in its place:

34. *Project Manual* – The bound document containing the Invitation to Bid, Instructions to Bidders, Bidding Documents, Contract Documents, General Conditions, Supplementary Conditions, the Specifications (Divisions 1 through 16, as applicable), and any attached supplementary exhibits, appendices, and attachments.

SC-1.01.A.36

Delete General Conditions Subparagraph 1.01.A.36 in its entirety and insert the following in its place:

36. *Resident Project Representative* – A representative of either the Owner or Engineer who may be assigned to the Project site on either a full- or part-time basis. The duties, responsibilities, and limitations on authority of the Resident Project Representative are specified in Supplementary Conditions paragraph SC-17.07.

SC-1.01.A.44

Add the following new subparagraph to General Conditions Subparagraph 1.01.A.44:

- a. In no event will the Work be certified as substantially complete until at least 90 percent of Work is completed. Partial utilization of any portion of the Work does not constitute Substantial Completion for that portion. Refer to Section 01700 for additional requirements to be met prior to Engineer issuing a “Definitive Certificate of Substantial Completion”.

SC-2.02.A

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

- A. Owner will furnish to Contractor (1) set of the Contract Documents in electronic PDF format.

SC-2.03.A

Delete General Conditions Paragraph 2.03.A in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the Effective Date of the Agreement, or if a Notice to Proceed is given on the date indicated on the Notice to Proceed.

SC-2.05.A

Amend General Conditions Paragraph 2.05.A by deleting from the first line the words "...Effective Date of the Agreement..." and replacing them with "...date when the Contract Times commence to run...".

Add the following new subparagraph to General Conditions Paragraph 2.05.A:

- 4 Preliminary Progress Schedule shall include a time estimate for performing work required by each contingency item, if any, listed in the Bid Form.

SC-2.05.A.3

Add the following new subparagraph to General Conditions subparagraph 2.05.A.3:

- a. If, in the opinion of the Engineer, the preliminary Schedule of Values is distorted, and not consistent with industry standards, the Contractor shall provide substantiation of the questioned items in the form of executed subcontracts or Purchase Orders.

SC-2.05.B

Add the following new Paragraph immediately after General Conditions Paragraph 2.05.A:

- B. *Insurance Certificates:* Before any Work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with General Conditions Paragraph 5.04 and Supplementary Conditions Paragraph SC-5.06.

SC-3.03.B

Add the following new subparagraph to General conditions Paragraph 3.03.B:

- 2. If there are any conflicts, errors, ambiguities, or discrepancies within the Contract Documents, the documents shall be interpreted in the following order of precedence: (1) Agreement, together with all Written Amendments, (2) Supplementary Conditions, (3) Standard General Conditions, (4) Specifications together with all Written Amendments, Change Orders, Work Orders, Change Directives, Field Orders, and Engineer's written interpretations and clarifications,

(5) Drawings as more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Orders, Change Directives, Field Orders and Engineer's written interpretations and clarifications.

SC-4.02

Delete General Conditions Paragraphs 4.02.A and 4.02.B, including their subparagraphs, in their entirety and delete all references to them elsewhere in the Contract Documents.

SC-5.01.B

Add the following new subparagraph to General Conditions Paragraph 5.01.B:

1. The Payment Bond and the Performance Bond, or other instruments of financial security, to be supplied by the Contractor shall be in the forms included in the Contract Documents, and no other forms shall be acceptable.

SC-5.01.D

Add the following new Paragraph immediately after General Conditions Paragraph 5.01.C:

- D. *Additional Bonds:* If Contract Price or Contract Times are changed in accordance with General Conditions Article 10, Owner may require that Contractor's bonds and insurance policies be modified to reflect such changes. Any resulting changes in Contractor's bond and insurance costs will be paid for in accordance with General Conditions Paragraph 11.01.A.5.i.

SC-5.03

Delete General Conditions Paragraphs 5.03A and 5.03.B in their entirety and replace with the following:

- 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 in accordance with General Conditions Paragraph 5.04 and Supplementary Conditions Paragraphs SC-5.04.
- B. Contractor shall submit evidence of required insurance coverage on the most current Accord 25 "Certificate of Insurance" form. All the policies of insurance required to be purchased and maintained by Contractor shall not be cancelled or materially changed until thirty days prior notice has been given by Contractor to Owner and Engineer and to each additional insured, and shall contain waiver provisions in accordance with General Conditions Paragraph 5.07, as amended by Supplementary Conditions Paragraphs SC-5.07.A and SC-5.07.B.

SC-5.04.B

Amend General Conditions Subparagraph 5.04.B.1 by inserting the word "non-contributory" between the words "primary" and "coverage" at the end of the Subparagraph.

SC-5.04.C

Add the following new Paragraph immediately after General Conditions Paragraph 5.04.B:

- C. The limits of liability for the insurance required by General Conditions Paragraphs 5.04.A.1 through 5.04.B.6 inclusive shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations; coverage shall be per project and per occurrence:
1. Workers' Compensation, and related coverages under General Conditions Paragraphs 5.04.A.1 and 5.04.A.2:
 - a. State: Statutory
 - b. Applicable Federal Statutory
(e.g. Longshoreman's):
 - c. Employer's Liability: \$1,000,000
 2. Contractor's General Liability under General Conditions Paragraphs 5.04.A.3 through 5.04.A.6, which shall include completed operations and product liability coverage; and eliminate the exclusion with respect to property under the care, custody and control of Contractor(*):
 - a. General Aggregate: \$2,000,000
 - b. Products – Completed Operations \$1,000,000
Aggregate:
 - c. Personal and Advertising Injury: \$1,000,000
 - d. Each Occurrence (Bodily Injury \$1,000,000
and Property Damage):
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverage's, where applicable.
 - f. Blasting hazards, where applicable.
 - g. Excess or Umbrella Liability: (**)

X	General Aggregate:	\$2,000,000
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X	Each Occurrence:	\$2,000,000
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(*) If Contractor's insurance does not allow eliminating the exclusion with respect to property under its care, custody and control, Contractor shall provide, by endorsement, "Voluntary Property Damage" coverage in the amount of the full replacement cost of the damaged property.

(**) If Contractor has lower underlying coverage than required above under Paragraphs SC-5.04.C.2.a through SC-5.04.C.2.d, Contractor may provide additional coverage to at least satisfy the required amount.

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

a. Bodily Injury and Property Damage, Combined Single Limit of: \$1,000,000

4. The Contractual Liability coverage required by General Conditions Paragraph 5.04.B.3 shall provide coverage for not less than the following amounts:

a. Bodily Injury and Property Damage (Each Occurrence):

Combined Single Limit \$1,000,000

5. Additional Insured:

- a. Town of Indian Head (OWNER)
- b. ARRO Consulting, Inc. (ENGINEER)

Contractor shall be responsible for any deductible, or self-insured retention.

Contractor's insurance agent shall indicate on the insurance certificate, or by separate letter, that the limits required herein and shown on the certificate have not been reduced by an outstanding claim; and that the specific coverages required under Paragraph SC- 5.04 are provided in the Comprehensive General (Public) Liability Policy.

SC-5.05.A

Delete General Conditions Paragraph 5.05.A in its entirety.

Delete General Conditions Paragraphs 5.06.A through 5.06.E, including their subparagraphs, in their entirety.

SC-5.06.A

Delete General Conditions Paragraph 5.06 A, including its subparagraphs, in its entirety and insert the following in its place:

- A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. Contractor shall be responsible for any deductible or self-insured retention. This insurance shall:
1. Include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants, and their officers, directors, partners, employees, agents and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or loss payee;
 2. Be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by these Supplementary Conditions and shall also include "soft costs";
 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;
 7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued; and
 8. Comply with the requirements of General Conditions Paragraph 5.06.C.

SC-5.06.B Delete General Conditions Paragraph 5.06.B in its entirety and replace with the following:

- B. Contractor shall purchase and maintain equipment breakdown insurance and any other additional property insurance required by Laws and Regulations, which insurance shall include the interest of Owner, Contractor, Subcontractors, and Engineer and their officers, directors, partners, employees, agents and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured or loss payee.

SC-5.06.D and SC-5.06.E

Delete General Conditions Paragraphs 5.06.D and 5.06.E in their entirety. SC-5.07.A

Amend General Conditions Paragraph 5.07.A by inserting the words "and non-contributory" immediately after the word "primary" at the end of the ninth line.

Add the following new Subparagraph to General Conditions Paragraph 5.07.A:

1. Notwithstanding the provisions of Paragraph 5.07.A, any waiver of rights by the Owner shall be effective only to the extent of actual recovery of insurance proceeds.

SC-5.07.B

Add the following new Subparagraph to General Conditions Paragraph 5.07.B:

3. Notwithstanding the provisions of Paragraph 5.07.B and its Subparagraphs, any waiver of rights as contemplated shall be effective only if such waiver is permitted by Owner's policies.

SC-5.08

Delete General Conditions Paragraph 5.08, including its subparagraphs, in its entirety.

SC-6.02.B

Add the following new subparagraphs to General Conditions Paragraph 6.02.B:

1. Regular working hours for the Project are defined as 7:00 A.M. to 5:00 P.M. Monday through Friday.
2. If Owner consents to Contractor working during non-regular hours or on Saturday, Sunday, or any legal holiday, Contractor shall reimburse Owner for wages, salaries, and expenses paid to Owner's and Engineer's personnel which, in the Owner's judgment, are required to be present at the Project site during the Contractor's Work. Contractor's reimbursement to Owner for these extra personnel costs will be

in the form of deduction from a progress payment. Contractor's superintendent shall also be present during performance of Work during non-regular hours, or on Saturday, Sunday, or any legal holiday.

SC-6.03.A

Add the following new subparagraph immediately after General Conditions Subparagraph 6.03.A:

1. The cost for equipment and materials to be provided for the Project must be held to the amounts Bid for such equipment and materials which, by signing the Agreement are agreed to by all parties.

SC-6.05

Delete General Conditions Paragraphs 6.05.A through 6.05.F, including their Subparagraphs, in their entirety and insert the following new Paragraphs 6.05.A through 6.05.L in their place:

- A. "Or-Equal": If in Engineer's sole discretion a Product proposed by Contractor is functionally the same, is fully equivalent in quality and durability, and is 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 Product may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements, specified in the following Paragraphs 6.05.C. through 6.05.J., for acceptance of proposed substitute items.
- B. Substitute Items: If in Engineer's sole discretion a Product proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A. above, it will be considered a proposed substitute item. The determination as to whether the Product is an "or-equal" or a proposed substitute item will be made during Engineer's review of the Product Shop Drawing, as defined in Article 1 of the General Conditions. If the Product proposed by the Contractor is not considered an "or-equal" Product, the Shop Drawing will be returned to the Contractor with the notation "Returned for Correction". Contractor will then be required to proceed as specified in the following Paragraphs 6.05.C through 6.05.J.
- C. Submit three copies of request for substitution, plus the number required to be returned to the entity making the request, to the Engineer. Each request for substitution shall cover one Product only.
- D. Requests for Equal or substitutions will be accepted only from a prime Contractor on the Project and, if requests are permitted during the Bidding period, from a Bidder as defined in the Instructions to Bidders.
- E. If Instructions to Bidders allow requests for Equal or substitutions during the Bidding period, time the submittal so that Engineer receives request for at least 18 days prior to the Bid opening date.

- F. Submit, with request for substitution, Shop Drawings, Product data, warranty information, case histories, lists of projects on which the Product has been successfully used, test reports, manufacturer's company profile, name and address of manufacturer's service organization, and other data as required to establish that proposed substitute Product is fully equivalent in quality to the Product of the named manufacturer(s) and meets all Specification requirements.
- G. Submit, with request for Equal or substitution, the dollar amount which the Owner will receive as a credit toward the Contract Price if the Equal or substitution is approved. The Owner and Engineer reserve the right to make an independent investigation of the cost savings, to negotiate with the Contractor to increase the credit, and to reject a proposed Equal or substitution if the credit is considered insufficient.
- H. Attach letters, provided by other contractors whose work may be affected by the proposed substitution, stating that the substitution will either have no effect on their work or that the substitution will affect their work and that the entity making the request for substitution has agreed to pay any extra costs which may be incurred if the substitution is approved. (This requirement does not apply during the Bidding period.)
- I. The entity submitting the request for Equal or substitution shall include, on its transmittal letter, the signed statement: "The signer of this letter certifies that all requirements of Supplementary Conditions Paragraph SC-6.05.I have been or will be met". The signer of the transmittal letter, by making this statement, affirms that: the proposed substitute Product has been investigated and has been found to equal or exceed in quality and durability the Product of the named manufacturer(s) and, further, that it meets all Specification requirements; all other prime contractors on the Project have been contacted as to the effect of the proposed substitution on their work and that letters from all other prime contractors are being submitted with the request (this condition does not apply during the Bidding period); the same Product warranty, which would have been provided by the named manufacturer(s), will be provided for the substitute Product; the entity submitting the request for substitution will coordinate installation of the proposed substitute and make any required changes in the Work at no additional cost to the Owner; the entity submitting the request for substitution will not make claims for additional costs, including but not limited to costs resulting from increases in purchase price(s) and installation costs of accepted substitute Product(s), or additional time required to implement the substitution; the entity making the request for substitution will reimburse the Owner for all costs associated with review by Engineer, or others, of the request for substitution, all redesign costs, and all costs required to obtain re-approval from regulatory agencies; all licenses required for use of the proposed substitute Product will be obtained and paid for by the entity submitting the request for substitution and such license(s) will be transferred to the Owner; if required by the Engineer, the entity submitting the request for substitution will provide a special performance warranty or bond (separate from the Contract Performance Bond) as a condition of Engineer's acceptance of the proposed substitute Product (such bond may be in an

amount up to 200 percent of the dollar value of the Product as determined by the Engineer).

- J. Engineer will notify the entity submitting the request, in writing, of decision to accept or reject proposed substitute Product.
- K. The procedures for proposed substitute means, methods, techniques, sequences, or procedures shall be equivalent to those specified above in Paragraphs 6.05.A. through 6.05.J.
- L. Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability, and no substitute will be ordered, installed, or utilized without Engineer's prior written approval. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutions, making any required revisions to Contract Documents, and obtaining re-approval from regulatory agencies. Contractor will be charged for the recorded man-hours, whether or not substitution is approved, at Engineer's and Engineer's Consultant's current hourly rates. Charges shall be subtracted from the Contractor's next progress payment.

SC-6.06.B

Add the following new subparagraph to General Conditions Paragraph 6.06B:

- 1. Instructions to Bidders and these Supplementary Conditions require that a list of proposed Subcontractors and their Experience Questionnaire be submitted with the Bid. Contractor shall not make substitutions of Subcontractors shown on the list, or additions of Subcontractors, after award of a Contract, without prior written approval of Owner or Engineer. Engineer will be allowed a reasonable time within which to investigate each proposed substitute or new Subcontractor. Engineer will be the sole judge of acceptability, and no substitute/new Subcontractor will perform any portion of the Work without Engineer's prior written approval. Engineer will record time required by Engineer in investigating the proposed substitute/new Subcontractor(s). Contractor shall be charged for the recorded man-hours, whether or not substitution is approved, at Engineer's current hourly rates. Charges will be subtracted from the Contractor's next progress payment.

SC-6.06.G

Add the following new sub-paragraph to General Conditions Paragraph 6.06.G:

- 1. If a written agreement between the Contractor and a Subcontractor or supplier is not obtained, Contractor, Subcontractor or supplier will not be entitled to payment for any additional Work performed or changes to Work performed by Subcontractor or Supplier.

SC-6.08.A

Amend the third line of General Conditions Paragraph 6.08.A as follows:

“...construction permits, **including building permit**, and licenses...”

SC-6.08.B

Add the following new Paragraph immediately after General Conditions Paragraph 6.08.A:

- B. Owner has made application, and has paid or will pay required fees, for the permits and approvals listed below:
 - 1. All permits and approvals required from Maryland Department of the Environment.
 - 2. Maryland Department of Transportation.
 - 3. Approval of sediment and erosion control plan from Charles Soil Conservation District.
 - 4. Charles County.
- C. Unless otherwise noted within the contract documents, Contractor shall be responsible for all inspections and reporting required for any permits.

SC-6.09.A

Add the following new subparagraph(s) to General Conditions Paragraph 6.09.A:

- 1. The Contractor is subject to **MISS UTILITY**: Sections 12-101, et seq., of the Public Utility Companies Article of the Maryland Annotated Code, as amended from time to time, which establish requirements regarding protection of existing underground utilities from excavation and demolition activities.

SC-6.10.A

Delete General Conditions Paragraph 6.10.A in its entirety and insert the following in its place:

- A. The Contractor shall be responsible for the payment of all sales and use taxes required by law on all Products which may be purchased for use in and which will become part of the Work. Owner may be exempt from sales and use taxes for certain Products to be incorporated into the Work. Contractor shall obtain legal advice to determine how and to what extent the Owner's tax exemption may be utilized by the Contractor. Owner will provide, at Contractor's request, required documentation to assist Contractor in obtaining any applicable tax exemptions.

SC-6.11.A.4

Add the following new subparagraph immediately after General Conditions subparagraph 6.11.A.3:

4. Contractor's responsibility shall include repairing, replacing, or restoring damaged property to its original or better condition, or the payment of money in a sum equal to the reasonable value of the damage caused to such property. If Contractor fails to promptly repair or replace damaged property, Owner may have the work performed by others and the cost of such work shall be deducted from Contractor's subsequent progress payment.

SC-6.11.C.1

Add the following new subparagraphs to General Conditions Paragraph 6.11.C:

1. Cleaning shall continue up to Final Payment and final acceptance of the Work by Owner. Site cleaning shall include, but not be limited to removal of weeds from all areas within the limits of the Project site.

SC-6.11.D

Add the following new subparagraphs to General Conditions Paragraph 6.11.D:

1. The Contractor shall determine the legal dimensional and load limits on all roads and bridges over and under which equipment and materials will be moved. In the event that loads or dimensions exceed legal limits, the Contractor shall obtain the necessary permits, pay permit fees, and comply with all regulations for moving such loads.
2. Contractor shall be responsible for damages to structures, roads and bridges resulting from loads or dimensions exceeding legal or design limits.

SC-6.16

Add the following new Paragraphs immediately after General Conditions Paragraph 6.16.A:

- B. The Contractor shall provide during non-working hours a maintenance crew to correct conditions, which are hazardous to the public or detrimental to proper system operation. If the Contractor refuses, or fails to correct the problem within a reasonable period of time, the Owner will have the necessary corrections performed by others and the full cost of the work shall be deducted from Contractor's subsequent Application for Payment. Names, addresses, and telephone numbers of the Contractor's emergency repair personnel shall be submitted to the Owner and Engineer at the pre-construction conference.

- C. In the event of an emergency if Contractor refuses, or fails to respond to Owner's directive to make necessary corrections Owner may stop work immediately, and without seven days' written notice as required by General Conditions Paragraph 15.02.

SC-6.19.C

Add the following new subparagraph immediately after General Conditions subparagraph 6.19.C.7:

- 8. any contract between Owner and subcontractor regarding the correction of defective work.

SC-6.20.C

Delete General Conditions Paragraph 6.20.C in its entirety. Including its subparagraphs, and insert the following in its place:

- C. The indemnification obligations of the Contractor under Paragraph 6.20.A shall not extend to the liability of the Engineer, Engineer's Consultants, agents, officers, directors, or employees arising out of errors or omissions of any of them in the preparation of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or the giving or failure to give directions or instructions, relating to design of the Work, as opposed to Project Construction procedures, by the Engineer, its agents or employees, if such giving or failure to give is the primary cause of the injury or damage.

SC-8.04

Insert the following text at the end of General Conditions Paragraph 8.04.A:

"....unless otherwise dictated by a State/Federal law or regulation, or agreed to by Owner and Contractor."

SC-8.06

Delete General Conditions Paragraph 8.06 in its entirety.

SC-9.03.A

Delete General Conditions Paragraph 9.03.A in its entirety and insert the following in its place:

- A. Engineer will assign a Resident Project Representative to the Project site. The responsibilities and authority of the Resident Project Representative, and their limitations, will be as provided in Supplementary Conditions Paragraph SC-17.07

SC-9.09.A

Add the following new subparagraphs under General Conditions Paragraph 9.09.A:

1. The Engineer will give the Contractor all desired assistance in interpreting specifications, drawings, or written instructions. Such assistance or lack thereof shall not relieve the Contractor from its responsibility to perform the Work in accordance with the Contract Documents.
2. The fact that the Engineer has permitted faulty work, or work to be performed not in accordance with the Contract Documents will not prevent the Engineer or Owner from requiring that the Contractor corrects any faults or incorrect construction immediately at no additional cost to the Owner.
3. The Engineer may not enter into any agreement with a Subcontractor which binds the Owner to make payments for work performed by the Subcontractor absent express written permission by the Owner for the specific work and Subcontractor involved.

SC-10.01.C

Add the following new Paragraph immediately after General Conditions Paragraph 10.01.B.

- C. When submitting a Change Order request, the Contractor shall provide such information as the Engineer and Resident Project Representative may require for the preparation of the Change Order in accordance with the General Conditions. Such information may include, but not be limited to, the following:
 1. Itemized description of the addition, deletion, or revision to the Work.
 2. Itemized description of the change in the Contract Price, including itemized contractor's/subcontractor's labor costs and materials pricing data to enable determination of the necessity and reasonableness of the costs. For work performed by subcontractor(s), documentation may require submittal of actual invoices.
 3. Description of the change, if any, in the Contract Time. The Contractor shall submit adequate documentation to satisfactorily prove that the nature of the delay actually and unavoidably will impact the Contract Times.

SC-11.01.B

Add the following new subparagraph to General Conditions Paragraph 11.01.B:

6. Costs associated with retaining Contractor's and others' own or rented equipment on the site, but not utilized, due to work stoppage or any other reason, including but not limited to addressing unforeseen, unknown and differing subsurface or physical conditions.

SC-11.01.C

Amend General Conditions Paragraph 11.01.C by inserting the following words prior to the word “Agreement” at the end of the first sentence:

“...Bid Form which is attached to the...”

SC-11.03.C

Amend General Conditions Subparagraph 11.03.C by revising the third line to read as follows:

“....to cover Contractor’s overhead, profit and burden for each...”

Amend General Conditions Subparagraph 11.03.C by inserting the following words at the end of the Paragraph:

“..., in addition to all required labor, material, equipment, facilities and services.

SC-11.03.D

Amend General Conditions Subparagraph 11.03.D by inserting the following words at the beginning of the Paragraph:

D. “Unless otherwise noted in the Bid Form, or elsewhere in the Contract Documents...”

SC-12.01.B.2

Amend General Conditions Subparagraph 12.01.B.2 by deleting the words within the parentheses and replacing them with the following:

...(which may include a fee for overhead and profit in accordance with General Conditions Paragraph 12.01.C.2)...

SC-12.01.C.1

Amend General Conditions Paragraph 12.01.C by deleting subparagraph 1.

SC-12.01.C.2

Amend subparagraph 12.01.C.2 of the General Conditions by deleting the following words at the beginning of the subparagraph:

“...if a fixed fee is not agreed upon, then...”.

SC-12.03

Add the following at the end of General Conditions Paragraph E:

“.....Costs resulting from such delays, including but not limited to liquidated damages, regulatory agencies’ penalties, and delay claims and associated costs by other contractors, shall be deducted, by Change Order, from Contractor’s Final Application for Payment in accordance with the Agreement

1. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays attributable by Contractor to the complexity of the Work.

Add the following new Paragraphs immediately after General Conditions Paragraph 12.03.E:

- F. When Contractor has submitted to Owner a schedule for completing the Work within a shorter time period than the Contract Times, or Milestones indicated in the Agreement, Contractor will not be entitled to any claims for additional costs, of any type, or delays, if the Contractor-submitted time schedule is for any reason exceeded, but its completion date is still within the Contract Times indicated in the Agreement.
- G. Contractor shall submit to Engineer detailed documentation, which shall include associated costs, reason(s), including but not limited to those described in General Conditions Paragraph 12.03.A, and responsible party, for all delays beyond the control of the Contractor.

SC-13.03.B

Amend General Conditions Paragraph 13.03.B by deleting the word “Owner” at the beginning of the Paragraph and replacing it with the following:

“Unless otherwise specified in Section 01025 of the Project Manual, Contractor...”

SC-13.07.C

Delete General Conditions Paragraph 13.07.C and replace with the following:

- C. Correction Period for Products placed into service prior to the date of Substantial Completion, as defined in Supplementary Conditions Paragraph SC-1.01.44, shall not begin any earlier than the date of Substantial Completion for the entire Project (the Work).

SC-13.07.E

Amend General Conditions Paragraph 13.07.E by deleting the text “...any applicable statute of limitations or repose.” from the end of the Paragraph and replacing it with
“...Supplementary Conditions Paragraph SC-13.07.F.

SC-13.07.F

Add the following new Paragraph immediately after General Conditions Paragraph 13.07.E:

- F. The obligations of the Contractor to correct *defective work*, beyond the specified Correction Period, shall survive acceptance of the Work and termination of the Contract by the Owner by an additional time period, which shall begin on the date of discovery of the *defective work*, but not earlier than the date of termination of the specified Correction Period, which additional time period shall be subject to the application of the doctrine of the nullum tempus. Correction of *defective work* during this extended Correction Period shall be at the Contractor's expense.

SC-14.02.A

Add the following new subparagraph immediately after General Conditions subparagraph 14.02.A.3:

- 4. Conditions relating to payment for Products suitably stored on the Project site or elsewhere, but not yet incorporated in the Work, are given in General Requirements Section 01025 of the Project Manual.

SC-14.02.B.5

Add the following new subparagraph immediately after General Conditions subparagraph 14.02.B.5.d:

- e. the amount of retainage is less than the amount of anticipated liquidated and other damages to be deducted from final payment.

SC-14.04.C

Amend General Conditions Paragraph 14.04.C by deleting the following words from the end of the first sentence and inserting them in the last sentence, after the parenthesis"

" . . . , which shall fix the date of Substantial Completion"

SC-14.05.A

Delete General Conditions Paragraph 14.05.A, including its subparagraphs and the heading "Partial Utilization," in their entirety. Delete all other General Conditions references to Paragraph 14.05.A and "Partial Utilization."

SC-14.07.A.2.b

Amend General Conditions Subparagraph 14.07.A.2.b to read as follows:

- b. consent of surety to final payment;

SC-16

Delete General Conditions Article 16 and all references to it elsewhere in the Contract Documents, in its entirety. For dispute resolution, refer to Article 6 of the Agreement.

SC-17.02.A

Delete General Conditions Paragraph 17.02.A in its entirety and replace with the following:

- A. When any period of time is referred to in the Contract Documents by “day(s)” it will be defined to mean “calendar day(s)” except when it is contained within a Federal or State legal act, or statute, in which case it will be as defined by the legal act or statute.

SC-17.07

Add the following new Paragraph immediately after General Conditions Paragraph 17.06:

17.07 Resident Project Representative Responsibilities and Authority

- A. A Resident Project Representative (RPR) will be assigned to the Project site. The responsibilities and authority and limitations thereon of the RPR will be as follows:
 - 1. Schedules: Review the progress schedule and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
 - 2. Conferences and Meetings: Attend meetings with Contractor, such as pre-construction conferences, progress meetings, pre-installation conferences and other project-related meetings.
 - 3. Liaison:
 - a. Serve as Engineer’s liaison with Contractor, working principally through Contractor’s superintendent to assist in understanding the intent of the Contract Documents.
 - b. Serve as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-site operations.
 - c. Assist in obtaining from Owner or Engineer additional details or information, when required for proper execution of the Work.
 - 4. Shop Drawings and Samples:
 - a. Receive samples which are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.

- b. Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved.
- 5. Review of Work, Rejection of Defective Work, Inspections, and Tests:
 - a. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever any work is unsatisfactory, faulty or defective, or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise Engineer of Work that should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
 - c. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record, and report to Engineer appropriate details relative to the test procedures and start-ups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project; record the results of these inspections and report to Engineer .
- 6. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- 7. Modifications:
 - a. Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with recommendations to Engineer. Transmit to Contractor decisions as issued by Engineer.
 - b. Allow minor deviations from Drawings or Specifications when Resident Project Representative is considered to be in the best position to make such decisions on a timely basis.
- 8. Records:
 - a. Maintain orderly files of correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Change Directives, Addenda, Change Orders, Field Orders, additional Drawings and Specifications issued subsequent to the execution of the Agreement, Engineer's clarifications

and interpretations of the Contract Documents, progress reports, and other Project-related documents.

- b. Monitor Contractor's work on Record Documents.
- c. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions on Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
- d. Record names, addresses, and telephone numbers of all Contractors, Subcontractors, and major suppliers of materials and equipment.

9. Reports:

- a. Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
- b. Consult with Engineer in advance of scheduled major tests, inspections, or start of important phases of the Work.
- c. Report immediately to Engineer upon the occurrence of any accident.

10. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that certificates, Operation and Maintenance manuals, and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents.

12. Completion: Conduct closeout and final inspections in the company of Engineer, Owner, and Contractor, and assist in preparation of lists of items to be completed or corrected.

13. The authority of the RPR is limited and (s)he is not authorized to:

- a. Exceed limitations of authority as set forth in the Agreement or other Contract Documents.
- b. Undertake any of the responsibilities of Contractor, Contractor's subcontractors and suppliers, or Contractor's superintendent.

- c. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- d. **Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work, with the exception when, in RPR's opinion, conditions of imminent danger exist. If such conditions exist, RPR shall:**
 - 1) **Immediately notify Contractor's on-site safety representative and require that the work be stopped.**
 - 2) **Concurrently RPR shall immediately notify Owner and Engineer of the work conditions and resulting action.**

END OF DOCUMENT

SECTION 01010
SUMMARY OF WORK

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Project Description.
- B. Project Location.
- C. Contractor's Use of Premises.
- D. Work Sequence.
- E. Special Requirements.

1.02 PROJECT DESCRIPTION

- A. The project generally consists of the construction of a pervious concrete parking lot, a concrete walkway, and a boardwalk connector to provide access from the new parking lot to the existing trail at Riverwatch Drive. The work also includes, but not limited to, excavation, backfill, drainage infrastructure, sediment and erosion control measures, landscaping, and all incidental work necessary to complete the project in accordance with the contract documents. The project is located in the Town of Indian Head, Charles County, Maryland.

1.03 PROJECT LOCATION

- A. Project site is indicated on the “Location Map” on Sheet 1 of 8.

1.04 CONTRACTOR'S USE OF PREMISES

- A. Confine construction equipment and operations of workmen to within the permanent and temporary rights-of-way.
- B. The Contractor shall limit his use of the premises to the Work indicated.
 - 1. Keep existing driveways and entrances serving the properties adjacent to the Project clear and available to the Owner and the public at all times. Do not use these areas for parking or storage of materials.
 - 2. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas designated by the Owner. If additional storage is necessary, obtain and pay for such storage off-site.

1.05 WORK SEQUENCE

- A. Submit with initial progress schedule required by Section 01300, a detailed step-by-step Work sequence, which will achieve compliance with the requirements of this Section 01010.
- B. Sequence construction operations to:
 - 1. Minimize inconvenience to businesses, public facilities, and residences located adjacent to the Project.
 - 2. Minimize disruption of traffic and maintain continuous traffic flow through the Work area to the maximum extent practicable.

1.06 SPECIAL REQUIREMENTS

- A. If the nature of construction work requires temporary disruption, relocation, or modification of utility services to businesses, public facilities, or residences adjacent to the Project, provide temporary services by methods approved by the utility company and the Engineer. Cost of such temporary services is considered to be included in the Contract price(s) and no extra compensation will be allowed. If the Contractor's operations result in extended (in excess of one hour) interruption of services, Owner or Engineer may direct utility company to correct such interruptions; and the utility company's costs will be charged to the Contractor.
- B. In the event that utility relocations or modifications are required during the Work, make arrangements with the affected utility company to perform such relocations or modifications. Cost associated with such utility relocations or modifications is considered part of the Contract price(s) and no extra compensation will be allowed.
- C. Sewer service laterals/main repair/replacement shall be in accordance with the requirements of the authority having jurisdiction.
- D. Contractor shall utilize site for staging and storage facilities.
 - 1. Assume full responsibility for stored materials and equipment.
- E. Contractor shall notify, in writing, property owners (5) days prior to commencing with work, of the anticipated work schedule and times when they will experience disruption of service and construction related noise near their properties.
- F. Contractor shall make every effort to reduce unnecessary non-construction related noises from the job site during night work (music/radios, etc.).
- G. Contractor shall close one lane of traffic for the utility work per MD SHA requirements Contractor shall notify Charles County and MD SHA of any maintenance of traffic.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Applications for Payment.
- B. Payment for Tests and Inspections.
- C. Products Stored on Project Site.
- D. Item Descriptions.

1.02 APPLICATIONS FOR PAYMENT

- A. Submit four copies of Application for Payment to Engineer at times specified in Paragraphs 14.2 and 14.12 of the General Conditions.
- B. Submit Application for Payment on form attached to this Specification Section.
- C. Include following Contractor's signed certification on Application for Payment:

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

1.03 PAYMENT FOR TESTS AND INSPECTIONS

- A. Contractor shall employ and pay for the services of an independent firm(s) to perform laboratory and field testing and inspections as required in the various Specification Sections. Obtain approval of the proposed testing and inspection firms from Engineer.

Cost of such tests and inspections shall be included in the Contract Prices and no separate or extra payment will be made.

1.04 PRODUCTS STORED ON PROJECT SITE

- A. Payment will not be made for Products stored on the Project site but not yet incorporated in the Work.

1.05 ITEM DESCRIPTIONS

- A. General: No additional payment will be made for removal/replacement/relocation of shrubbery, fences, signs, poles, guywires, or other above- or below-grade obstacles, unless otherwise noted herein. These costs shall be included in the lump sum or unit price(s) bid for the item requiring their removal.
 - 1. Prices shall also include a proportional amount of the costs for bonds, insurance, mobilization/demobilization, other Contractor's allowable expenses, profit, and overhead.
 - 2. **All excavation located below paved areas shall be Class 1 excavation. All remaining excavation shall be considered unclassified, including rock.**
- B. Bid Item No. 1 - Clearing and Grubbing:
 - 1. Measurement and payment per acre at the unit price bid.
 - 2. Payment shall include felling and removal and disposal of trees, tree stumps, and roots to the extent described in the specifications; removal of brush, fallen timber, rubbish, vegetation, existing paving, and other objectionable materials above, or below original ground elevation, including but not limited to the removal of abandoned waterline; furnishing and installing temporary protective fencing, and furnishing and applying tree wound dressing.
 - 3. Stripping and stockpiling of existing topsoil will be paid separately.
- C. Bid Item No. 2 - Stripping and Stockpiling of Existing Topsoil:
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include stripping existing topsoil to its full depth, in areas shown on the Drawings to receive improvements, and stockpiling it on-site for use in subsequent topsoiling operations.
- D. Bid Item No. 3 - Cut, Fill, and Rough Grade:
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include excavation of excess material in areas where site improvements are located, placement and compaction of same material where it is needed to establish new grade, and rough grading.
 - 3. Suitable excavated material shall be used as fill/backfill in areas where site improvements are located.
 - 4. Unsuitable materials shall be legally disposed of off-site.

- E. Bid Item No. 4 - Infiltration Trench system
 - 1. Measurement and payment per square yard at the unit price bid.
 - 2. Payment shall include full compensation for excavation and disposal of excess material; grading and subgrade preparation; placement of geotextile fabric; supply and placement of stone reservoir (AASHTO No. 3), choker course (No. 8), river stone and R-3 Riprap; installation of underdrain piping, fittings, and cleanouts; and all incidentals, labor, and equipment necessary to complete the system as shown on plan.
 - 3. Pervious concrete over the trench will be paid separately.
- F. Bid Item No. 5 - Pervious Concrete Parking
 - 1. Measurement and payment per square yard at the unit price bid.
 - 2. Payment shall include furnishing, forming, placing, compacting, finishing, jointing, curing and required testing of the porous concrete. Excludes infiltration trench components.
- G. Bid Item No. 6 – Place Thermoplastic Markings for Parking:
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include all markings as shown on plan and shall be full compensation for surface cleaning/preparation, furnishing and applying marking material, labor, equipment, and incidentals necessary to complete the work.
- H. Bid Items No. 7 - Furnish and Install/Relocate/Remove Signs:
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include the removal and relocation of applicable existing signs, as well as the installation of new signs with all associated supports and hardware, at the locations identified on the design plans and in accordance with the design specifications.
- I. Bid Item No. 8 – Install Concrete Sidewalk and Pad.
 - 1. Measurement and Payment per square yard at the unit price bid.
 - 2. Payment shall include excavation and subgrade preparation; furnishing and placing base material; formwork and finishing; concrete placement, jointing, and edging; curing and protection; backfilling and grading adjacent areas; removal and disposal of excess material.
 - 3. Surface restoration will be paid separately.
- J. Bid Item No. 9 – Install Bike Rack
 - 1. Measurement and payment at the lump sum price bid.
 - 2. Payment shall include layout and anchoring, coordination with existing conditions, and all labor, equipment and hardware.
- K. Bid Item No. 10 – Install Boardwalk Connection:
 - 1. Measurement and payment at the lump sum price bid.

2. Payment shall include all labor, materials, equipment, and incidentals necessary for complete and functional installation, including but not limited to final grading, placing all foundations, supporting and structural components conforming to the plans and details.
- L. Bid Item No. 11 – Install Evergreen Shrub Screening:
1. Measurement and payment per each at the unit price bid.
 2. Payment shall include all labor, materials, delivery, soil amendments, installation, watering, mulch, maintenance, and clean-up to complete the work.
- M. Bid Item No. 12- Place Top Soil, Seeding, Final Grading, Restoration:
1. Measurement and payment at the lump sum price bid.
 2. Payment shall include all labor, materials, equipment, and incidentals required to complete the following in accordance with the plans and specifications: final grading of all disturbed areas to ensure positive drainage and uniform surface; placement and fine grading of topsoil to a minimum depth of 4 inches (or as specified); application of seed mix, fertilizer, and mulch as specified; soil amendments as required by site conditions or specified mix; restoration of all disturbed areas, including those outside the immediate construction limits (e.g., staging areas, haul routes); maintenance of seeded areas until final acceptance, including watering, weeding, and re-seeding as needed.
- N. Bid Item No. 13 – Remove and Reinstall Wooden Fence with Extension:
1. Measurement and payment at the lump sum price bid.
 2. Payment shall include all labor, materials, equipment, and incidentals required to remove and salvage existing fence components, store and protect salvaged materials, reinstall fence in its original configuration, furnish and install new materials required to match existing, construct the fence extension as shown on the plans.
 3. Surface restoration will be paid separately.
- O. Bid Item No. 14 – Erosion and Sedimentation Control:
1. Measurement and payment at the lump sum price bid.
 2. Payment shall include furnishing and placing temporary seeding, furnishing and installing materials and devices indicated on the Drawings, including stand-by pumping equipment, for the control of soil erosion and prevention of sedimentation from leaving the Construction Site.
- P. Bid Item No. 15 – Remove and Reset Existing Street Light:
1. Measurement and payment per each at the unit price bid.
 2. Payment shall include coordination with the Town of Indian Head Public Works Department; disconnection of electrical service by qualified personnel; removal of pole, luminaire, foundation (if applicable), and related equipment; temporary storage and protection of all components; reinstallation at the original or designated new location; reconnection and testing of electrical service;

replacement of any damaged components required to restore functionality; all labor, materials, equipment, and incidentals necessary to complete the work.

3. No separate payment will be made for damage caused due to contractor negligence. Replacement of lost or damaged components will be at the Contractor's expense.

Q. Bid Item No. 16 - Miscellaneous Unclassified Excavation:

1. Measurement and payment per cubic yard at the unit price bid.
2. Payment made only for actual amount of material excavated within limits required by Engineer.
3. Includes test pits to locate utilities and other excavation where required by Engineer and not paid for under another pay item.

R. Bid Item No. 17 - Miscellaneous Aggregate Backfill:

1. Measurement and payment per cubic yard at the unit price bid.
2. Payment made only for actual amount of material placed within limits required by Engineer.
3. Includes aggregate backfill where required by Engineer and not paid for under another pay item.

S. Bid Item No. 18 - Miscellaneous Concrete:

1. Measurement and payment per cubic yard at the unit price bid.
2. Payment made only for actual amount of concrete placed within limits required by Engineer.
3. Includes concrete where required by Engineer and not paid for under another pay item.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01040
COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Coordination.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Do not unload or store Products where they will interfere with the progress of the Project or delay the work of others.
- C. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- D. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Reference surveys.
- B. Construction control surveys.
- C. Surveys for measurement and payment.

1.02 REFERENCE SURVEYS

- A. Prior to the start of construction, Owner will provide and pay for surveys to establish reference baselines and benchmarks.

1.03 CONSTRUCTION SURVEYS

- A. Provide and pay for surveys to establish locations of the Work.
- B. Establish and stake locations for:
 - 1. Location and elevation of service connections.
 - 2. Location and elevation of pipelines and utilities.

1.04 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. Perform surveys to determine quantities of unit price work, including control surveys to establish measurement reference lines. Perform surveys accompanied by the Resident Project Representative prior to starting work.
- B. Contractor shall sign surveyor's field notes and shall calculate and certify quantities for payment purposes.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pre-construction conference.
- B. Progress meetings.

1.02 PRE-CONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference to be held prior to Contractor's commencement of the Work.
- B. Attendance:
 - 1. Owner's Resident Project Representative.
 - 2. Engineer.
 - 3. Contractor (attendance required).
 - 4. Major Subcontractors.
 - 5. Governmental agency representatives, utility representatives, and other parties who may have control of, or may be affected by, the Work.
- C. Agenda Items (as applicable to the Project):
 - 1. Designation of Contractor's supervisory personnel and phone numbers to be used in event of an emergency during non-working hours.
 - 2. List of major Subcontractors and suppliers.
 - 3. List of proposed Products.
 - 4. Schedule of Shop Drawing submissions.
 - 5. Schedule of Values.
 - 6. Construction progress schedule and work sequencing.
 - 7. Utility relocations.
 - 8. Procedures for submittals; Field Orders and Change Orders; and Applications for Payment.
 - 9. Reference points.
 - 10. Record documents.
 - 11. Project coordination.
 - 12. Site security.
 - 13. Temporary utilities.
 - 14. Field offices.
 - 15. Housekeeping.
 - 16. Safety and first-aid procedures.
 - 17. Environmental requirements.
- D. Engineer will preside at conference and prepare minutes for distribution to participants.

1.03 PROGRESS MEETINGS

- A. Engineer will schedule progress meetings throughout the construction period at intervals as required.
- B. Attendance:
 - 1. Resident Project Representative.
 - 2. Contractor's Project Superintendents (attendance required) and other Prime Contractor(s) representatives.
 - 3. Major Subcontractors and suppliers.
 - 4. Engineer.
 - 5. Others as appropriate for agenda topics for each meeting.
- C. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.
 - 13. Other business relating to Work.
- D. Engineer will conduct meeting and prepare minutes for distribution to participants.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures.
- B. “Or Equal” and Substitute submittals.
- C. Action on submittals.
- D. Shop Drawings.
- E. Product data.
- F. Construction progress schedules.
- G. Pre-construction Photos and Videos.
- H. Submittals specified in other Documents/Sections.

1.02 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
- B. Number each submittal. Number shall consist of the following parts, each separated by a dash:
 - 1. Contract number.
 - 2. Five-digit Specification Section number.
 - 3. Two-digit sequence number starting for each Specification Section with 01 and continuing with 02, 03, etc., for subsequent submittals with the same Specification Section number.
 - 4. Use the fourth part of the number only for resubmittals. For the first resubmittal of a previous submittal, add -R1 to the previous number. For the second resubmittal, change to -R2, and so on.

As an example of the numbering process for Contract Number 1, the third submittal under Section 03300 would be numbered 1-03300-03, and the second resubmittal of this same submittal would be numbered 1-03300-03-R2.

- C. Identify Project, Contractor, Subcontractor, or Supplier. Identify pertinent Drawing sheet and detail number(s), and Specification Section number, as appropriate.

- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Stamp shall have the following format:

Approved for Contract Requirements

The Contractor's signature below indicates that this Submittal has been checked with the Drawings, Specifications, and site conditions and found to meet all requirements of same including dimensions, and that the Contractor's guarantee fully applies to the Product(s) covered.

RE: Project: _____

Submittal Number: _____

Drawing Sheet Number: _____ Detail Number: _____

Deviations from Contract Documents? No ☐ Yes ☐ (letter attached)

By: _____

Signature (Contractor)

Contractor's Name: _____

- E. Submittals without Contractor's stamp of approval will not be reviewed by Engineer and will be returned to Contractor for resubmittal. Resubmittal will be considered as No. 1 and all others will be at Contractor's expense.
- F. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
- G. Submit letter, which specifically identifies deviations from Contract Documents. Identify Product or system limitations, which may be detrimental to successful performance of the completed Work.
- H. When a Product is of various sizes, or there are similar Products (e.g. sump and grinder pumps) in the Project, provide a submittal, which includes all identical/similar Products.
- I. When a Specification Section includes several Products, submit shop drawings for all Products in a single submittal.
- J. Where deviations from Contract Documents will affect the Work of another Contractor, the Contractor making the submittal shall attach a letter from the other Contractor(s) stating that the deviation will either:
1. Have no effect on the other Contractor's Work; or
 2. Have an effect on the other Contractor's Work and that the Contractor making the submittal has agreed to pay all extra costs associated with the deviation.
- K. Provide space for Contractor and Engineer review stamps.

- L. Revise and resubmit submittals **within ten calendar days from date of receipt**. Identify all changes made since previous submittal. Where submittal must be held for coordination Engineer shall be so advised by Contractor.
- M. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- N. **Incomplete submittals will be returned without review and their receipt will be counted as Submittal No.1.**

1.03 "OR EQUAL" AND SUBSTITUTE SUBMITTALS

- A. "Or Equal" and Substitute Products or methods submittals shall be in compliance with Supplementary Conditions Paragraphs SC-6.05.A through SC-6.05.L.
- B. The Engineer will determine if a Product or method qualifies and is acceptable as an "Equal" or as a Substitute.
- C. Contractor shall be responsible for Engineer's, and others', review time, and for all other costs associated with acceptance/rejection of an "Equal" or "Substitute" Product or method.
- D. **Request for "or Equal"/Substitute of Product, or method shall be made as a separate submittal, for Engineer's review and acceptance/rejection, not as a final shop drawing submittal.**

1.04 ACTION ON SUBMITTALS

- A. Engineer's Action: Where action and return is required or requested, Engineer will review each submittal, mark with the action taken, and where possible return **within fourteen calendar days from date of receipt**. Where submittal must be held for coordination, Contractor will be so advised by Engineer.
- B. Submittals returned with "**APPROVED**" action indicate that the information submitted was found to be in conformance with the design concept and in compliance with the requirements of the Contract Documents. The Contractor remains responsible for work-related errors, deviations, and discrepancies in the submittal, but may proceed with performance of the work covered by the submittal.
- C. Submittals returned with "**APPROVED AS NOTED**" action indicate that the information submitted was found to be in conformance with the design concept and in compliance with the requirements of the Contract Documents, provided the noted clarifications or corrections are incorporated in the Work and in the Record Documents. The Contractor remains responsible for work-related errors, deviations, and discrepancies in the submittal, but may proceed with performance of the work covered by the submittal. Resubmission of information is not required.

- D. Submittals returned with "**RETURNED FOR CORRECTION**" action indicate that: (1) information submitted is at least partially not in conformance with the design concept, (2) information submitted is at least partially not in compliance with the requirements of the Contract Documents, (3) submittal is incomplete and does not include all items required by the individual Specification Sections, or (4) certifications or computations required by the individual Specification Sections have not been included with the Shop Drawings and Product data. Engineer will note the deficiencies or corrections required, and return the submittal to the Contractor. Performance of the work covered by the submittal shall not proceed until corrected information is submitted and approved.
- E. Submittals returned with "**NOT AS SPECIFIED**" action indicate that the Engineer interprets the information submitted to be not in conformance with the design concept or not in compliance with the Contract Documents. This action may also indicate non-compliance with the Contractor's responsibility to review information and submit notification of deviations and discrepancies for the Engineer's review. Performance of the work shall not proceed until new information is submitted and approved.
- F. Review Action does not establish submitted information as a Contract Document, a Change Order, or authorization to deviate from the Contract Documents.
- G. For all re-submittals except the first, Engineer and Engineer's consultants will record man-hours required for review of the re-submittal. Contractor shall be charged for review of such repeat re-submittals at Engineer's (and Engineer's consultant's) current hourly rates. Charges for repeat re-submittals shall be subtracted from Contractor's next progress payment.

1.05 SHOP DRAWINGS

- A. Hard Copy Submittals: Submit four (4) hard copies, which will be retained by Engineer, plus the number of copies which the Contractor requires.
- B. Electronic Submittals: All submittals may be made electronically, with the exception of the FINAL O&M Manuals, which must be in hard copy
- C. After review, distribute in accordance with Article on "Submittal Procedures" above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.06 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus (4) copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

- C. After review, distribute in accordance with Article on "Submittal Procedures" above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.07 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit (4) copies of progress schedule for Owner and Engineer review. Revise and resubmit as required.
- B. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- C. Indicate submittal dates required for Shop Drawings, Product data, samples, and Product delivery dates, including those furnished by Owner and under Allowances.
- D. Do not include extensions to the Contract Time in revised progress schedules until such extensions have been approved by Owner and Engineer in accordance with Article 12 of the General Conditions.
- E. Failure to submit an initial or revised progress schedule, acceptable to the Engineer, before or with each Application for Payment will be considered a substantial violation of the Contract Document provisions. In accordance with Paragraph 14.7 of the General Conditions, the Engineer may recommend that the Owner withhold payment of all or part of the amount shown in an Application for Payment until an acceptable progress schedule is submitted.
- F. Time unit used on progress schedule: Calendar Day.

1.08 PRE-CONSTRUCTION PHOTOS AND VIDEO REPRESENTATION

- A. Prior to commencing with the Work Contractor shall take photos and generate a video record of pre-construction conditions at the Project area, including all areas within the temporary/construction right-of-way, and submit two(2) sets of photos and videos to Engineer. Contractor shall submit records in DVD-Video format (MPEG-2) playable in a consumer-grade DVD movie player.
 - 1. Information shown shall include, but not limited to streets, driveways, sidewalks, curbs, ditches and other surface physical features, visible utilities and adjacent structures.
 - 2. The purpose of the photos and video recording is to document existing conditions and to provide a fair measure of required restoration.
 - 3. Temporary lighting shall be provided as necessary to properly record areas where natural lighting is insufficient (indoors, shadows etc.).
 - 4. The videos shall include an audio soundtrack to provide the following information:
 - a. Detailed description of location being viewed referenced to Contract Drawings (i.e. station no., building designation, pipeline route, etc.).

- b. Direction (N, S, E, W, looking up, looking down, etc.) of camera view.
 - c. Date, time, temperature, environmental conditions at time of video recording
 - 5. Any areas not readily visible by video recording methods shall be described in detail. Unless otherwise approved by Engineer, video recording shall not be performed during inclement weather, or when the ground is partially, or totally covered with snow, ice, leaves etc.
 - 6. The original videos shall be submitted to the Engineer accompanied by a detailed log of the contents of each tape. The log shall include location descriptions with corresponding tape counter numbers to facilitate the quick location of information contained on the videos.
 - 7. One set of videos will be maintained by the Engineer during construction and may be viewed at any time by Contractor upon request. Upon final acceptance of the Work, the video will become the property of the Owner.
- B. Extent of video recording will be established during the pre-construction conference.
- C. Costs associated with video recording shall be included in the Contract Price.

1.09 SUBMITTALS SPECIFIED IN OTHER DOCUMENTS/SECTIONS

- A. Applications for Payment: Section 01025.
- B. Request for Approval of Cutting and Patching Methods: Section 01040.
- C. Schedule of Shop Drawing Submittals: General Conditions 2.05.
- D. Requests for Substitutions: General Conditions 6.05, as amended by the Supplementary Conditions Paragraphs SC-6.05.A through SC-6.05.L.
- E. Claim Documentation: General Conditions 10.05 and 12.02.A.
- F. Documentation Required with Applications for Progress Payments and Final Application for Payment: General Conditions 14.02.A and 14.07.A.
- G. Emergency Crew Names, Addresses, and Telephone Numbers: Supplementary Conditions 6.16.
- H. Notice to Owner of Utility Service Interruptions: Section 01010.
- I. Supervisory Personnel Names and Phone Numbers: Section 01200.
- J. Reports on Tests and Inspections: Section 01400.
- K. Record Documents: Section 01700.
- L. Warranties: Section 01700.

M. Spare Parts and Maintenance Materials: Section 01700.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

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

1.03 REFERENCES

- A. Conform to reference standards cited in Specifications.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.
- D. Any measurement or payment provisions included in a reference standard are not applicable to this Project.

1.04 INSPECTION AND TESTING LABORATORY SERVICES

- A. Method of paying for the services of an independent firm(s) to perform inspection and testing is specified in Section 01025.
- B. The independent firm will perform inspections, tests, and other services specified in individual Specification Sections and as required by the Engineer.
- C. The independent firm shall submit duplicate original reports and test results directly to the Owner and Engineer, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. Reports shall be submitted to Owner and Engineer within 48 hours after completion of test.
 - 1. Reports and test results will also be submitted to the Contractor.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Engineer and independent firm at least 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements will be performed by the same independent firm on instructions by the Engineer and/or Resident Project Representative. Payment for retesting will be charged to the Contractor.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Regulatory requirements.
- B. Temporary sanitary facilities.
- C. Barriers.
- D. Water control.
- E. Dust control.
- F. Protection of installed work.
- G. Progress cleaning.
- H. Safety equipment.
- I. Removal of utilities, facilities.

1.02 REGULATORY REQUIREMENTS

- A. Comply with applicable laws and regulations of authorities having jurisdiction, including but not limited to building codes, health and safety regulations, utility company regulations, and environmental protection regulations.
- B. Provide electrical equipment which is UL listed.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide self-contained single-occupant toilet units of the chemical, aerated-circulation, or combustion type. Units shall be properly vented and fully enclosed with a shell of glass fiber-reinforced polyester or similar non-absorbent material.

1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide protection for plant life designated to remain. Replace damaged plant life.

- C. Protect vehicular traffic, stored Products, site and structures from damage.

1.05 WATER CONTROL

- A. At all times during the construction of Work on this Project maintain the flow of storm water, naturally occurring water and wastewater in existing facilities and channels affected by the Work.
- B. Contractor assumes responsibility for damages to property caused by flooding due to blocking or restriction of storm water passages, natural waterways, and wastewater facilities.
- C. Do not at any time permit wastewater flow from existing sewers to flow into nearby waterways or to flow on surface areas.
- D. See other water control requirements under Section 01560 -- "Soil Erosion and Sedimentation Control".

1.06 DUST CONTROL

- A. Maintain all work areas, both on and off the Project site, free from dust.
- B. Use sprinkling of water and/or, if approved by the Engineer or Resident Project Representative, chemical or light bituminous treatment to control dust.
- C. Where sprinkling is used, repeat at intervals as required to keep all parts of the disturbed area at least damp at all times.
- D. Perform dust control whenever a dust nuisance or hazard occurs and whenever directed by the Engineer or Resident Project Representative.

1.07 PROTECTION OF INSTALLED WORK

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

1.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- B. Remove waste materials, debris, and rubbish from site daily and dispose off-site.
- C. Remove mud and construction debris on a daily basis from paved surfaces used by the Contractor.

1.09 SAFETY EQUIPMENT

- A. First Aid Supplies: Comply with governing regulations.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, and materials prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01560

SOIL EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Work required by regulations to prevent soil erosion and control sedimentation during Work on the Project.

1.02 SEDIMENT AND EROSION CONTROL PLAN

- A. The requirements of the Sediment and Erosion Control Plan are given in the following Articles of this Section. Additional requirements and construction details for various Sediment and Erosion Control measures are shown on the Drawings.

1.02 REGULATORY REQUIREMENTS

- A. The sediment and erosion control measures are subject to inspection by State, county, and local regulatory agencies. The Contractor shall be fully responsible for constructing and maintaining the sediment and erosion control measures to the extent that they are, at all times, acceptable to the regulatory agencies. The Contractor shall be liable for payment of any fines or legal costs that the Owner may incur as a result of the Contractor's failure to properly construct and maintain the sediment and erosion control measures.
- B. One objective of the "Sediment and Erosion Control Plan" is the protection of private property. To assist any damaged property owners in redress of grievances, the following stipulations are made:
 - 1. Any silt, sediment, or mud leaving the construction site will be construed as damage to neighboring property and evidence of negligence on the part of the Contractor.
 - 2. Any damages claimed by neighboring property owners will be rectified and restitution made by the Contractor.
- C. Comply with any local laws, codes, and regulations concerning the construction and maintenance of sediment and erosion control measures.

1.03 CONSTRUCTION SEQUENCE

- A. Install all sediment and erosion control measures prior to start of clearing operations.

- B. Conduct construction operations in accordance with the following general sequence:
 - 1. Construction of sediment and erosion control measures including swales and silt fences.
 - 2. Excavation.
 - 3. Construction of pipelines and other items required by the Contract Documents.
 - 4. Backfilling, final grading, paving, seeding, and other ground stabilization.
 - 5. Removal of temporary sediment and erosion control measures.

1.04 GENERAL SEDIMENT AND EROSION CONTROL METHODS/PROCEDURES

- A. In all cases, the smallest practical area of land surface shall be disturbed.
- B. Topsoil shall be stripped and placed up slope from proposed construction areas where possible. Topsoil shall be kept separate from all other materials.
- C. Stockpiles of stripped topsoil, or excavated material and other erodible/soluble areas and materials shall be stabilized immediately.
- D. Excavated material shall be placed up slope from the excavation whenever possible. Runoff from spoil piles shall be directed through a sediment filter structure and discharged in a non-erosive manner. Stockpiles of excavated material shall be stabilized immediately.
- E. Utility excavations shall be open only long enough to properly install and inspect all underground facilities in accordance with applicable Specification Sections.
- F. Dewatering equipment discharge shall be directed onto a stabilized surface so that erosion does not occur. Discharges shall be directed through a sediment filter structure or sedimentation basin and discharged in a non-erosive manner.
- G. Backfilled excavations shall be restored to original type of cover and grade in accordance with Specifications. Temporary stabilization is required for any and all erodible/soluble areas and materials.
- H. Areas to be seeded or sodded shall be finish graded with six inches of topsoil unless otherwise specified. Positive drainage shall be maintained away from all structures. No isolated low spots shall be created.
- I. All sediment shall be prevented from entering storm drains, or watercourses through use of appropriate sediment filtration Products or systems.

1.05 SPECIFIC SEDIMENT AND EROSION CONTROL PROCEDURES

- A. Temporary Sediment Traps for Storm Drain Inlets:
 - 1. Traps shall be installed where there is a possibility of runoff from the construction area entering existing storm drain inlets.

2. Sediment traps shall be inspected after each rain and maintained in a functional condition at all times during the construction period.
3. Traps shall be removed when contributing drainage areas are stabilized.
4. See Drawings for materials and construction of sediment traps.

B. Silt Fence Sediment Barrier:

1. Silt fence sediment barrier shall be used to filter sediment from runoff.
2. Sediment barriers shall be inspected after each rain and repaired as required to maintain proper function.
3. Remove sediment behind barrier whenever sediment deposit reaches depth of approximately six inches.
4. See Drawings for details on construction of silt fence sediment barrier.

C. Straw Bale Sediment Barrier: Straw bales shall be used only as short-term control measures.

1. Bales shall be securely staked across areas of concentrated flow.
2. Bales shall be inspected regularly and replaced as necessary.

1.06 RESTORATION

- A. After completion of construction, remove all temporary erosion and sedimentation control devices. Restore areas in which these devices were located to the original condition or to the condition called for by the Contract Documents.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01570

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General requirements for control of public traffic through the Work area with the goal of ensuring safe and efficient traffic movement and providing safe working conditions for Contractor's personnel.

1.02 REGULATORY REQUIREMENTS

- A. Requirements of Regulatory Agencies:
 - 1. Traffic regulation on streets other than State Highways shall be performed in accordance with the requirements of the Town of Indian Head.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01600
MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Transportation and handling.
- B. Storage and protection.

1.02 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.03 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible.
- B. For exterior storage of fabricated Products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Project record documents.
- D. Adjusting.
- E. Warranties.
- F. Spare parts and maintenance materials.

1.02 CLOSEOUT PROCEDURES

- A. General Conditions Article 14 contains detailed requirements for Project closeout. Sequence of closeout procedures is as follows:
 - 1. Contractor submits written request for closeout inspection to Engineer.
 - 2. Owner, Engineer, and Contractor conduct **initial closeout inspection using approved FINAL O&M manuals.**
 - 3. Engineer prepares "punchlist" of items to be completed and submits to Contractor.
 - 4. Contractor completes items on punchlist and requests re-inspection.
 - 5. Engineer and Contractor conduct re-inspection.
 - 6. If, on the basis of re-inspection, Engineer believes Project to be substantially complete, Engineer prepares a **tentative certificate** of Substantial Completion and submits to Owner for approval. **Tentative certificate** shall include a list of items to be completed and time limit for their completion. List of items to be completed will include deficiencies in cleaning and in submittal of spare parts, extra materials, Operation and Maintenance manuals, inspection certificates from regulatory agencies, Record Documents, warranties, and other items required by the Contract Documents.
 - 7. When Owner approves the **tentative certificate**, Engineer issues to the Contractor a **definitive** Certificate of Substantial Completion as described in the General Conditions.
 - a. **The definitive certificate of Substantial Completion fixes the date of Substantial Completion.**
 - b. **In no event will the Work be certified as substantially complete until at least 90 percent of the Work is completed.**

- c. **Partial utilization of any portion of the Work does not constitute Substantial Completion.**
- d. A **definitive** certificate of Substantial Completion will not be issued until successful completion of the 10-day trouble-free operation, by the Contractor, of the facility as specified in Section 01650.
- 8. When Contractor completes the list of items, as issued with the **definitive** Certificate of Substantial Completion, he requests final inspection.
- 9. Owner, Engineer, and Contractor conduct final inspection.
- 10. If Owner and Engineer agree that all items have been completed, Contractor will submit Final Application for Payment.
- 11. Contractor submits to the Engineer Final Application for Payment, including all documents required by General Conditions' Paragraph 14.12, and any other portion of the Contract Documents; Final Payment will not be made until these documents have been received by the Engineer. Final Applications for Payment shall identify total adjusted Contract Price, previous payments, and amount remaining due.
- 12. When Engineer approves Final Application for Payment, he submits to Owner with recommendation for payment.
- 13. Owner makes final payment to Contractor, deducting the amount of liquidated damages and the amount of any unresolved claims, which have been filed against the Owner in connection with the Work.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Rake landscaped areas.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.04 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product Section description of actual Products installed, including the following:

1. Manufacturer's name and Product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and Modifications.

E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured elevations of foundations in relation to plant datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to plant datum and base lines.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Drawings.

F. Delete Engineer title block and seal (by crossing out) from Record Drawings.

G. Include the following Contractor's signed statement on each Record Drawing sheet:

These Record Drawings have been prepared by

(Name of Contractor)

and accurately reflect as-built conditions. Responsibility for accuracy of the Record Drawings rests with the Contractor.

H. Submit documents to Engineer with request for closeout inspection. (See Paragraph 1.02.A.1 of this Section.).

I. **Certificate of Substantial Completion will not be issued until acceptable Record Drawings have been submitted.**

1.05 ADJUSTING

A. Adjust operating Products to ensure smooth and unhindered operation.

1.06 WARRANTIES

A. Provide duplicate notarized copies of approved warranty certificates.

B. Assemble documents from Subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

D. Date of warranty shall not be earlier than the date of Substantial Completion.

- E. **Final application for payment will not be approved without approved warranty certificates.**

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide Products, spare parts, maintenance, and extra materials in quantities specified in individual Specification Sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to Final Application for Payment.
- C. **Final payment will not be approved until all items have been received and accepted by Owner.**

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01750

PRODUCT WARRANTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General administrative and procedural requirements for preparation and submission of manufacturers' standard warranties on Products and special Project warranties.
 - 1. Refer to the "Standard General Conditions of the Construction Contract" (the Conditions of the Contract) for terms of Contractor's special warranty of workmanship and materials.
 - 2. Certifications and other commitments and agreements for continuing services to the Owner are specified in the individual Specifications of the Contract Documents.

1.02 RELATED DOCUMENTS AND SECTIONS

- A. Submittals: Section 01300
- B. Project Closeout: Section 01700.

1.03 DEFINITIONS

- A. Warranty: A written guaranty, which provides assurance to the Owner by Contractor, installer, supplier, manufacturer, or other responsible party, as warrantor, for the quantity, quality, performance and other representations of an individual Product, or group of Products (a system) of the Work, in whole or in part, for the duration of the specified Correction Period.
- B. Guaranty: Assurance to the Owner by Contractor, Product manufacturer, or other specified party, as guarantor, that the specified warranty will be fulfilled by the guarantor in the event of default by the warrantor.
- C. Standard Product Warranty: Preprinted, written guaranty published by Product manufacturer, for particular Product and specifically endorsed by the manufacturer to the Owner.
- D. Special Project Warranty: Written guaranty required by, or incorporated into the Contract Documents, to extend project Correction Period time limits provided by the Conditions of the Contract, or to provide greater rights for the Owner.
- E. Correction Period: Correction Period shall be synonymous with "warranty period", "guaranty period" and similar terms used in the Contract Documents. Standard

Correction Period shall be no less than one year from the date of Substantial Completion.

1. Refer to Supplementary Conditions Paragraph SC-13.07.F for correction of *Defective* work after termination of specified Correction Period.

1.04 WARRANTIES AND GUARANTIES

- A. General: Contractor shall provide all warranties and guaranties with Owner named as beneficiary. For Products, or their components, bearing a manufacturer's warranty, or guaranty, that extends for a period of time beyond the specified Correction Period, the warranty or guaranty shall identify the extended time period.
- B. Specific Warranty and Guaranty Requirements: Refer to individual Specification Sections of Divisions 2 through 16 for specific requirements, including content and limitations.
- C. Disclaimers and Limitations: Manufacturers' disclaimers and limitations on Product warranties and guaranties shall not relieve Contractor of responsibility for warranty and guaranty requirements for the work that incorporates such Products, nor shall they relieve suppliers, manufacturers, and installers required to countersign Special Project Warranties with Contractor.
- D. Owner's Recourse: Written warranties made to Owner shall be in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under law, nor shall warranty periods be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights, or remedies.
- E. Warranty as Condition of Acceptance: Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment shall be required on such work, or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.
- F. Related Damages and Losses: When correcting warranted work that has been found defective, Contractor shall remove and replace other work that has been damaged as a result of such defect, or that must be removed and replaced to provide access for correction of warranted work.
- G. Replacement Cost: Upon determination that work covered by a warranty has been found to be defective, Contractor shall replace, or reconstruct the work to a condition acceptable to Owner and in accordance with the applicable requirements of the Contract Documents. Contractor shall be responsible for all costs for replacing, or reconstructing defective work, regardless of whether Owner has benefited from use of the Work through a portion of its anticipated useful service life. Contractor shall also be responsible for all costs for replacing, or reconstructing other work that has been damaged as a result of such defect, or that must be removed and replaced to provide access for correction of warranted work.

- H. Reinstatement of Warranty: When work covered by a warranty has been found defective and has been corrected by replacement, or rebuilding, Contractor shall reinstate the original warranty, including its time duration, by written endorsement, in accordance with the Conditions of the Contract.
- I. Signatures: Final Certificates shall be signed by person authorized to sign warranties and guaranties on behalf of entity providing such warranty or guaranty.
- J. Warranty Certificate Submittals: Prior to Project Closeout, Contractor shall submit all written warranties and guaranties to the Engineer for final review and acceptance and shall insert in approved O&M manuals.

1.05 TIME OF WARRANTY

- A. Submission of Preliminary Manufacturer's Warranty Certificates: Contractor shall submit to Engineer for review Manufacturer's Warranty Certificate with each Product shop drawings and data submittals. Unless otherwise specified, Contractor shall obtain preliminary copies of Warranty Certificates, and when applicable bonds, within ten calendar days of completion of applicable item, or work; submit in compliance with Section 01300.
- B. Submission of Final Warranty Certificates: Contractor shall submit fully executed copies of Warranty Certificates with the final O&M manuals in compliance with Section 01700.
- C. Date of Warranties: Commencement date of warranty/guaranty periods shall be not earlier than the date of Substantial Completion.
- D. Duration of Warranties and Guaranties: Unless otherwise specified, or prescribed by law, warranty and guaranty periods shall be not less than the Correction Period required by the Conditions of the Contract, but in no case less than one year from the date of Substantial Completion of the Project. See Product Specifications Sections in Divisions 2 through 16 of the Project Manual for extended warranty and guaranty beyond the specified Correction Period.

1.07 WARRANTIES

- A. Submit sample warranties along with submission of Shop Drawings and Product Data.
- B. Insert approved warranties in the approved final Operation and Maintenance Manuals after the date of Substantial Completion has been established.
- C. Assignment of Warranties: Warranties issued by Product/System manufacturers, on material and equipment (including internal components), shall be assigned directly to the Owner.

- .
- D. **Warranties which begin prior to the date of Substantial Completion are not acceptable. When manufacturers' warranties begin on the date of delivery, or any date earlier than the date of Substantial Completion, Contractor shall purchase extended warranties which shall provide coverage at least for the entire Correction Period. Cost for extended warranties shall be included in the Contract Price.**

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION.

PART 3 - EXECUTION

NOT APPLICABLE TO THIS SECTION.

END OF SECTION

SECTION 02015

PROTECTION OF UNDERGROUND UTILITIES

PART 1 - GENERAL

1.01 PROJECT CONDITIONS:

- A. In preparation for and prior to commencing with the excavation work required by this Project, Contractor shall comply with requirements of Maryland Underground Utility Line Protection laws and notify Miss Utility prior to any work.
- B. The existence and location of underground utilities shown on the Drawings is based on information supplied by the underground utility owners in accordance with the laws of Maryland. Neither the Owner nor the Engineer warrants the accuracy of this information; this information is intended to serve as notification that such utilities exist in the general proximity of the Work. The Contractor shall be responsible for the protection against direct or indirect injury of known existing underground pipes, conduits, utilities, and structures, or other property in the vicinity of the Work, or those that may be discovered during performance of the Work. The Contractor shall maintain on site, during performance of the Work, a sufficient quantity of suitable materials, for sustaining or supporting any structure or utility that may be uncovered, which may be weakened, or otherwise compromised, whether or not such structure or utility is indicated on the Drawings. The cost of work associated with protection of utilities shall be included in the Contract Price
- C. The Contractor shall comply with notification provisions of the laws of Maryland. Excavation shall only begin after notification by the Contractor, of its intent to dig, is given to Miss Utility within the time required by the laws of Maryland. In case of complex projects notification shall be not less than ten business days prior to the beginning of excavation, or demolition work. If the Contractor removes its equipment and vacates the work site for more than two business days, (s)he shall notify Miss Utility again, unless other arrangements have been made directly with the utility owner(s) involved. If the location of excavation changes, a new notification shall be made. Damage to existing utilities resulting from the failure of the Contractor to follow the notification requirements of the laws of Maryland shall be at Contractor's expense and no additional compensation will be provided.
 - 1. Contractor shall cooperate with agents of the utility owners during the progress of the Work.
 - 2. Contractor shall provide Miss Utility with specific information to identify the site of the proposed work. Contractor shall provide any other information requested by Miss Utility.
 - 3. Contractor shall obtain a serial number from Miss Utility evidencing compliance with notification requirements of the laws of Maryland.
 - 4. Contractor shall schedule and conduct a preconstruction meeting with the utility owners. Notice of this meeting shall be provided, in writing, to the Engineer a

- minimum of seven (7) business days in advance of the meeting. When a utility owner, with facilities located within the project area, requests a meeting with the Contractor, the Contractor shall promptly arrange and attend such a meeting. Contractor shall provide full accounting of any such meetings to the Engineer.
5. If the utility owner fails to respond to the Contractor's request to Miss Utility, or the facility owner notifies Contractor that the utility cannot be marked within the time frame, and a mutually agreeable date for marking cannot be arrived at, the Contractor may proceed with excavation as scheduled, but not earlier than the lawful dig date.
 6. If the Contractor has reason to believe that the facilities have been overlooked or marked incorrectly, the Contractor shall contact Miss Utility and re-notify the utility owner. If, after re-notification, sufficient information to safely excavate is still not provided, Contractor shall be compensated, by the Owner, in accordance with the payment provisions of the laws of Maryland and of the Contract, for all costs resulting from repairs to, or replacement of damaged, existing underground utilities or structures.
- D. Contractor shall establish procedures, for emergency action and repairs to utilities accidentally damaged during construction, with the utility owners prior to the commencement of work. During the course of the work, if the Contractor accidentally damages an existing utility, the Contractor shall immediately follow the established procedures for emergency action and repairs. The Contractor shall immediately notify 911 and the utility owner if the damage results in the escape of any flammable, toxic, hazardous or corrosive gas or liquid, which endangers life, health, or property.
- E. Provided that existing services had been correctly marked prior to excavation operations and further provided that the Contractor did not further damage the existing service line(s), when the Contractor, during the progress of the excavation, uncovers utility services, which because of previous (concealed) damage or age are in poor condition, the Contractor shall immediately notify the utility owner in order that steps may be taken for replacement or repair. Locations of repairs, and the procedures of repairs that have been made by Contractor, at the direction of the utility company, shall be recorded by the Contractor. Contractor shall be compensated, by the Owner, in accordance with the payment provisions of the laws of Maryland and of the Contract, for all costs resulting from repairs, or replacement authorized by the utility owner.
1. In the event the Contractor, during the progress of the excavation, further damages the existing service line(s) (s)he will be responsible for the resulting costs.
- F. Pipes, conduits, and other underground utilities exposed as a result of the Contractor's operations, shall be adequately supported, along their entire exposed length, by timber or planking, installed in such a manner that the anchorage of the supporting members will not be disturbed or weakened during the backfilling operations. Backfill of selected material shall be carefully placed and compacted under and around the supports, and all supports shall be left in place as a guard against breakage of the supported facility due to trench settlement.

- G. Contractor shall perform exploratory excavations when, in the opinion of the Engineer, the utility owner, or the project owner, it is necessary to determine, or confirm the location(s) of existing underground structures and utilities.
1. Contractor shall excavate test pits to determine the location and elevation of existing subsurface utilities, or structure(s) at locations where indicated on the Drawings and other areas as directed by the Engineer. Excavate such test pits in the presence of an authorized representative of the utility/structure owner. Contractor may not proceed with excavation work without the prior notification and approval of the owner of the subsurface utility, or structure(s).
 2. Contractor may not proceed with excavation work in locations where new utility lines are to be connected to existing utility lines until test pits have been dug and the exact location and elevation of the existing utility has been determined.
 3. Test pits or other miscellaneous excavation performed for the Contractor's convenience will be at Contractor's expense.
- H. Contractor shall plan the excavation to avoid damage to or minimize interference with underground utilities in the construction area. Excavation that requires temporary or permanent interruption of a utility service shall be coordinated with the affected utility owner.
- I. When the Contractor damages a utility during the excavation work and the damage results in personal injury or property damage to parties other than the Contractor or the utility owner, the Contractor shall submit an incident report to the Town of Indian Head and the Department of Labor and Industry and to any other agency required by the laws of Maryland, not more than ten (10) business days after the incident. A copy of the incident report shall also be submitted to the Engineer and Owner.

PART 2 - PRODUCTS

NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

3.01 PAYMENT FOR ADDITIONAL WORK

- A. General: The cost for repair and/or support of existing underground utilities and structures damaged during construction, including those found to have been damaged previously (concealed), or in poor condition due to age, will be paid as follows:
1. If the utility/structure was properly and correctly marked, in accordance with the laws of Maryland, Contractor shall be responsible for all costs, including support material left in place.
 2. If the utility/structure was not shown, or was marked improperly or incorrectly, and not in accordance with the laws of Maryland, Contractor will be compensated for the work performed in accordance with the payment provisions of the Contract and as further specified below.

- B. When information on the location of existing utilities is not provided, the information provided is inaccurate or incorrect, or uncharted or incorrectly charted utilities are encountered, the Contractor shall determine the location of the existing utilities by utilizing prudent techniques including excavating test pits. The Contractor shall submit written notification to the Engineer apprising the Engineer of the conditions that have warranted the notification and request for additional compensation. In the event that written notification cannot be immediately provided, the Contractor may provide oral notification to the Engineer followed by written notification no later than three (3) business days thereafter. After submission of written notification, the Contractor will be entitled to additional compensation in accordance with the laws of Maryland.
1. Where a price has been indicated, in the Contract Documents, for additional excavation, payment will be made as “Miscellaneous Unclassified Excavation”. When a price is not indicated, the extra work will be paid on a force account (time and material) basis.
 2. When claiming extra work on a force account basis, the Contractor shall complete a Force Account Daily Sign-Off form on a daily basis. The Engineer or an authorized representative of the Owner shall countersign the sign-off form. Failure to complete the sign-off form on a daily basis may constitute grounds to deny additional payment.
 3. Contractor shall submit a change order request for the extra force account work. The change order request shall include a Negotiated Price Cost Justification form as well as copies of the daily sign-off forms for the period covered under the change order request. Fees for subcontractors, overhead and profit, and other costs, as may be allowed by the Conditions of the Contract, shall be in accordance with the Conditions of the Contract. The Engineer reserves the right to require additional documentation to substantiate the amounts claimed in the change order request.
 4. The change order request will be processed in accordance with the Conditions of the Contract.

END OF SECTION

SECTION 02100

SITE PREPARATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Clearing and Grubbing.

1.02 RELATED SECTIONS

- A. Site Grading: Section 02210.

1.03 SITE CONDITIONS

- A. Environmental Requirements: Exercise the necessary means and methods to control dust on the site during performance of the work.
- B. Burning: Perform on-site and off-site burning only if permitted by governing local laws and regulations.
- C. Protection:
 - 1. Preserve all objects, including trees and shrubs designated to remain (if any). The means and methods used for protection are at the Contractor's option.
 - 2. Use required protective measures during the felling of trees and debris removal to provide for the safety of employees and others.
- D. Explosives and Blasting: As specified in Site Grading: Section 02210.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fill Material: On-site soil or soil-rock mixed materials free of topsoil, vegetation, lumber, metal and refuse; and free of rock or similar hard objects larger than six inches in any dimension. Rock to soil ratio shall not exceed one part rock to three parts soil. Obtain fill material from the areas on site where extensive excavation will be required.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to performance of the actual work, carefully inspect the entire site and locate objects and the plant life designated to be preserved.

3.02 PERFORMANCE

- A. Where Excavation work is to be performed, clear and grub the area to the depths as follows:
 - 1. Footings: 18 inches.
 - 2. Walks: 12 inches.
- B. Stump Removal:
 - 1. Remove stumps and roots completely in areas of Excavation and Embankment.
 - 2. In all other areas as specified previously and not included in Excavation and Embankment area, remove stumps and roots, matted roots and similar subsurface debris to the depths as previously specified.
 - 3. Stumps over 4 inches in diameter left in place in areas other than Excavations and Embankments areas shall be treated with herbicide to prevent regrowth.
 - 4. Backfill stump holes with fill material as previously specified.
- C. Disposal: Burnable debris may be disposed of by controlled, supervised burning; local laws and regulations permitting.
 - 1. Contractor option to dispose of burnable debris along with non-burnable debris off-site in a lawful manner.
 - 2. Dispose of debris from clearing and grubbing in a site having current approval for conducting solid waste disposal.
 - 3. Remove clearing and grubbing debris accumulations daily.
 - 4. Should the Contractor elect to continue work beyond normal working hours, clearing and grubbing debris shall not be allowed to accumulate for more than 48 hours.

END OF SECTION

SECTION 02105
SITE PREPARATION

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. Site Grading: Section 02210.

1.02 SITE CONDITIONS

- A. Environmental Requirements: Exercise the necessary means and methods to control dust on the site during performance of the Work.
- B. Burning is not permitted on site for this project.
- C. Protection:
 - 1. Preserve all objects, including trees and shrubs, designated to remain (if any). The means and methods used for protection are at the Contractor's option.
 - 2. Use protective measures during the felling of trees and debris removal to provide for the safety of employees and others.
- D. Explosives and Blasting: Not permitted in performance of site preparation work.
- E. Disposal:
 - 1. Burning is not permitted on site for this project.
 - 2. All debris must be removed from the site and disposed of according to local regulations at an approved facility.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fill Material: On-site, or borrow (imported) soil, or soil/rock mix material free of vegetation and refuse, and free of rock or similar hard objects larger than two inches in any dimension. Obtain fill material from the areas on site where extensive excavation will be required.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Where Embankment is to be performed, clear and grub the area to a depth not less than 6 inches below existing ground.
- B. Prior to performance of the actual work, carefully inspect the entire site and locate objects and the plant life designated to be preserved.

3.02 PERFORMANCE

- A. Where Landscaping work is to be performed, clear and grub the area to a depth not less than 8 inches below existing ground.
- B. Where Excavation work is to be performed, clear and grub the area to the depths as follows:
 - 1. Footings: 18 inches.
 - 2. Walks: 12 inches.
 - 3. Road and Parking areas: 18 inches.
- C. Stump Removal:
 - 1. Remove stumps and roots completely in areas of Excavation and Embankment.
 - 2. In all other areas as specified previously and not included in Excavation and Embankment area, remove stumps and roots, matted roots, and similar subsurface debris to the depths as previously specified.
 - 3. Stumps over 4 inches in diameter left in place in areas other than Excavations and Embankments areas shall be treated with herbicide to prevent regrowth.
 - 4. Backfill stump holes with fill material as previously specified.

END OF SECTION

SECTION 02210

SITE GRADING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Site Grading and Embankment Construction.

1.02 RELATED SECTIONS

- A. Sediment and Erosion Control: Section 01560.

1.03 SYSTEM DESCRIPTION

- A. Definitions:
 - 1. Unclassified Excavation: Removal of materials of any kind in the excavation, including rock excavation.
 - 2. Subgrade: Prepared earth surfaces on or over which additional materials will be placed or work is to be performed.

1.04 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T99, Moisture-Density Relations of Soils, Using a 5.5-lb. Rammer and a 12-in. Drop.
 - 2. AASHTO T191, Standard Method of Test for Density of Soil In-Place by the Sand Cone Method.
- B. American Society for Testing and Materials:
 - 1. ASTM D 2167, Density of Soil in Place by the Rubber-Balloon Method.
 - 2. ASTM D 2487, Standard Classification for Soils for Engineering Purposes.
- C. The "MDT Sections" noted herein refer to sections contained in the Maryland Department of Transportation, State Highway Administration, Standard Specifications for Construction & Materials, as supplemented. The references pertain only to materials, construction equipment, methods and labor. The measurement and payment provisions do not apply to work to be performed under this Contract.
 - 1. MDT Section 901 Aggregates.

1.05 SUBMITTALS

- A. Test Reports: Compaction density test reports based on method of density determination as specified in Reference Standards and the method as approved by the Engineer.

1.06 SITE CONDITIONS

- A. Classification of Excavated Materials: No consideration will be given to the nature of materials encountered in site grading operations. Therefore, as unclassified excavation, no additional payment will be made for difficulties occurring in excavating and handling of materials.
- B. Environmental Requirements:
 - 1. Do not perform grading when soil or weather conditions are unsuitable. Unsuitable conditions include moisture saturated or frozen in place soil and precipitation of any kind present on the soil or occurring during the Work.
 - 2. Exercise the necessary means and methods to control dust on the site as well as in the off site work areas where excavation and grading are required.
 - 3. Do not leave the site in a dusting condition following the work of this Section. If necessary, employ a watering schedule to control the dust.
 - 4. Do not use frozen material in performing the work or place materials on frozen surfaces.
 - 5. When it is necessary to haul soft or wet soil material over roadways, use suitably tight vehicles to prevent spillage. Clear away spillage of materials on roadways caused by hauling at no expense to the Owner.
 - 6. Plan work so as to provide adequate protection during storms with provisions available at all times for preventing flood damage.
- C. Protection: Assume all risks attending the presence or proximity of overhead or underground public utility and private lines, pipes, conduits and support work for same, also existing structures and property of whatever nature, in or over excavations or adjacent to such excavations. Complete responsibility for replacement and restitution work of whatever nature to the above, as damaged or destroyed by work of this Contract, rests solely with the Contractor and at no expense to the Owner.
 - 1. Outside Rights-Of-Way: Take necessary precautions to protect trees, shrubs, lawns and such other landscaping from damage. Restitution work for damages rests solely with the Contractor and at no expense to the Owner.
- D. Accommodation of Traffic: Do not obstruct streets, roads and highways, unless the Municipality or Governing Agency authorizes in writing the complete closing of the street, road or highway. Employ such measures, at no expense to the Owner, as may be necessary to keep the street, road or highway open and safe for traffic. Maintain a

straight and continuous passageway on sidewalks and over crosswalks, at least three feet wide and free from obstructions. DO NOT OBSTRUCT FIRE HYDRANTS.

- E. Explosives and Blasting: Not permitted in performance of work required by this Section.
- F. Borrow Excavation: When the required quantity of earth fill material exceeds the quantity of suitable on site fill material, provide borrow excavation. If borrow excavation is needed, notify the Engineer sufficiently in advance to permit the Engineer to verify such need and to view the proposed borrow pit. Borrow excavation will be subject to the Engineer's approval whose written consent shall be obtained prior to its use. All borrow fill shall meet the requirements of Item 2.01-A of this Section.
- G. Excess Materials: No right of property in materials is granted the Contractor of excess on site materials prior to completion of Site Work. This provision does not relieve the Contractor of his responsibility to remove and dispose of surplus excavated materials. Unsuitable material such as sod, stumps and spongy soil as well as excess rock shall become the property of the Contractor and shall be disposed of legally off-site.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Backfill: On-site excavated soil, or borrow fill, classified as SM (with liquid limit less than 50% and plastic index less than 7%), GC, or GM in accordance with ASTM D 2487, free of topsoil, vegetation, lumber, metal, and refuse; and free of rock or similar hard objects larger than three inches in any dimension. Rock to soil ratio shall not exceed one part rock to three parts soil.
- B. Coarse Aggregate Material: AASHTO No. 57 conforming to MDT Section 901.
- C. Graded Aggregate Base Material: GAB conforming to MDT Section 901.
- D. Nonwoven Geotextile Fabric: Use materials conforming to MDE Standards and Specification Table H.1.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Salvaged Topsoil: Within the areas indicated for grading, strip turf and topsoil to the

depth of suitable topsoil material and stock pile for subsequent topsoiling operations.

1. Topsoiling: Performed as work of Finish Grading: Section 02260.

B. Stockpiling: Place topsoil storage piles within the limits of the project, on well-drained land and at locations not interfering with the Prosecution of Work.

3.02 PERFORMANCE

A. Erosion Control: Implement erosion control measures during performance of work of this Section. Erosion Control as specified in Section 01560.

B. Overlot Grading: Perform rough grading over the site within the areas to be graded as indicated on the Drawings.

1. Topsoiled areas: Not more than 0.15 ft. above or below indicated grade less specified topsoil depths.

C. Vehicle Traffic Area Grading: As specified in Section 02230.

D. Removing Obstructions:

1. Where rock is encountered at proposed subgrade elevations, remove such for a depth of twenty-four inches below proposed infiltration bed subgrade. Where rock is encountered in areas outside the parking area, rock encountered shall be removed at a depth of six-inches.

2. At excavation bottom, cut rock to form level surface for pipe or foundation bedding.

3. Removal of Rock by Means Other Than Blasting: Where removal of rock is required remove by the use of mechanical surface impact equipment, by drilling and hydraulic rock splitting equipment, or by other Engineer approved methods.

E. Embankments: Construct embankments in accordance with the following paragraphs.

1. Exceptions for roadway embankments are specified in Section 02230.

2. Use Backfill placed in nine-inch layers and each compacted separately using equipment meeting with Engineer's approval. Carry the whole embankment up evenly the required elevation without breaks or irregularities in material distribution or in the formation of layers. Trim embankment slopes to the lines indicated on the Drawings and leave in a neat and acceptable condition.

3. Add water to Backfill which does not contain a sufficient amount of moisture to obtain the required compaction. Backfill containing moisture in excess of the amount required to obtain the necessary compaction density may not, without written approval, be incorporated in the embankment until allowed to dry to a moisture content not greater than two percentage points above optimum for that particular material.

4. Fill existing natural depressions or such other depressions resulting from the site

work to the level of adjacent ground elevation in the same manner specified for formation of embankment prior to starting initial embankment layer.

5. Remove existing embankment foundation material when determined unsatisfactory by the Engineer. Refill such areas to original elevation in the same manner specified for formation of embankment. Payment for this additional work will be made at the applicable Unit Prices bid under the Schedule of Unit Prices for Quantity Adjustments.
6. Scarify embankment foundation surface where embankment three feet or more in height is to be placed. Scarify or otherwise loosen embankment foundation surface to a depth of six inches where embankment less than three feet in height is to be placed.
7. Existing embankment foundations having a slope steeper than four to one shall be plowed to provide embankment binding when required by the Engineer. On steeper slopes the Engineer may require the foundation to be cut into steps or berms. No additional payment will be made for steps or berms and plowing.
8. Compact embankment material to a minimum final density of not less than 90% of the maximum dry weight density at its optimum moisture content.
9. Borrow Excavation materials required for embankment shall meet the requirements of Backfill. During the excavation operation, keep the borrow area graded to insure free water drainage. Following completion of work in the borrow area, grade the area to present a uniformly trim appearance merging into the surrounding terrain and to prevent serious erosion.

3.03 FIELD QUALITY CONTROL

- A. Field Moisture-Density Tests: Conduct a minimum of two field moisture-density determinations per 1000 feet length of embankment, for each one and one-half feet rise in embankment height and at locations designated by the Engineer.
 1. The moisture content at which the maximum density of the Backfill is obtained with a given compactive effort, AASHTO T99, shall be considered the optimum moisture content.
 2. Determine compaction density of embankment in accordance with AASHTO T191.
 3. Determine compaction density of roadway in accordance with AASHTO T191.
 4. Field compaction density may be determined by the Rubber Balloon Method, ASTM D 2167, or other acceptable method, in lieu of the sand-cone method specified above; but only with Engineer's written permission.

END OF SECTION

SECTION 02220

STRUCTURAL EXCAVATION, BACKFILL, AND COMPACTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation and backfill for building foundation, footings, sign posts, and compaction requirements.

1.02 RELATED SECTIONS

- A. Soil Erosion and Sedimentation Control: Section 01560.
- B. Protection of Underground Utilities: Section 02015.
- C. Site Preparation: Section 02100.
- D. Site Grading: Section 02210.
- E. Trenching, Backfilling and Compacting: Section 02221.
- F. Cast-In-Place Concrete: Section 03300.

1.03 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Laboratory Tests: Certain materials stated herein under Products may require advance examination or testing according to methods referenced, or as required by the Engineer.
 - a. Testing laboratory shall furnish both Engineer and Contractor two (2) copies of test result reports. Same reports will be considered as sufficient evidence of acceptance or rejection of materials represented.
 - 2. Aggregate Material Tests:
 - a. Conduct aggregate quality tests in accordance with requirements of appropriate Referenced Standard for such materials.
 - b. The Engineer reserves the right to accept aggregate materials based on certification from supplier that the aggregate originates from a source approved by SHA and that the aggregate complies with specified SHA requirements.

1.04 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T191, Standard Method of Test for Density of Soil In-Place by the sand cone method.
- B. American Society For Testing and Materials (ASTM):
 - 1. ASTM C33, Concrete Aggregates, Spec. for.
 - 2. ASTM D422, Particle-Size Analysis of Soils, Method for.
 - 3. ASTM D423, Liquid Limit of Soils, Test for.
 - 4. ASTM D424, Plastic Limit and Plasticity Index of Soils, Test for.
 - 5. ASTM D448, Standard Sizes of Coarse Aggregate for Highway Construction.
 - 6. ASTM D698, Moisture-Density Relations Of Soils Using 5.5/lb. (2.5 kg) Rammer and 12-in. (304.8-mm) Drop.
 - 7. ASTM D1556, Density of Soil In Place By the Sand-Cone Method.
 - 8. ASTM D2167, Density of Soil In Place By the Rubber-Balloon Method.
 - 9. ASTM D2922, Density Of Soil and Soil-Aggregate In Place By Nuclear Methods (Shallow Depth).
 - 10. ASTM D3017, Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 11. ASTM D4318, Liquid Limit, Plastic Limit, and plasticity Index of Soils, Test Method for.
- C. Maryland State Highway Administration, Specifications, July 2008 and latest addenda
- D. Testing Agency: As approved by the Engineer with the following required qualifications.
 - 1. Laboratory and field testing must be performed under the general supervision of a Registered Professional Engineer.
 - 2. The independent testing agency must have experience in quality control of earthwork structural fills.

1.05 SUBMITTALS

- A. Testing Agency Approval: Submit experience qualifications of the proposed independent testing agency for approval.
- B. Samples: Submit samples of materials being proposed for use based on the following:
 - 1. Aggregates: Submit a 10 lb. sample of each type, packaged in containers or bags of suitable strength.
 - 2. Selected Compacted Fill: Submit representative samples in quart size moisture-proof containers of suitable strength.
 - 3. Backfill: Submit samples of materials proposed for backfill when requested by Engineer.

1.06 SITE CONDITIONS

- A. Classification of Excavated Materials: Under this Contract, all excavation is unclassified. No consideration will be given to the nature of materials, which may include rock, encountered in structural excavation operations. Therefore, as unclassified excavation, no additional payment will be made for difficulties occurring in excavating and handling of materials.
- B. Environmental Requirements:
1. Do not perform excavating, backfilling or compacting when weather conditions or the condition of materials are such, in the opinion of the Engineer, that work cannot be performed satisfactorily.
 2. Do not use frozen materials as backfill nor wet materials containing moisture in excess of the amount necessary for satisfactory compaction.
 3. Prior to use, moisten dry backfill material not having sufficient moisture to obtain satisfactory placement or compaction.
 4. Accommodation of Drainage: Maintain sewers, drains, and swales free of debris for surface drainage. No damming or ponding of water will be permitted. Do not direct flow of water across or over pavements except through approved pipes or properly constructed troughs. Provide pipes or troughs of sufficient sizes and lengths. Control grading in the vicinity of excavations so the ground surface is properly pitched to prevent water running into excavated areas.
 5. Pumping: Keep excavations free from water. Provide and operate pumps of sufficient capacity for dewatering the excavations. Dispose of water removed from excavations in a manner that will not cause injury to public or private property, to any portion of completed or in progress Work, or prevent the use of highways and roadways by the public. No additional payment will be made for pumping or other difficulties encountered due to water.
 6. Control groundwater and surface water during construction in order to maintain soil stability. Maintain the water table elevation sufficiently below the levels of excavations that slopes will remain stable and bottoms of excavations will not become loosened by flow of water. If the foundation material loses its strength due to improper dewatering techniques, overexcavate the material and replace it with Structural Foundation Backfill at the Contractor's expense.
- C. Dust Control: To prevent spread of dust during performance of work of this Section, thoroughly moisten excavation areas by sprinkling or other methods as approved by the Engineer.
- D. Explosives and Blasting: Not permitted in performance of structural excavation work.
- E. Protection:
1. The Contractor shall, at no expense to the Owner, sustain in their places, and protect from direct or indirect injury, all pipes, conduits, structures, or other property in the vicinity of the work, whether above or below ground, or that may appear in the excavation. Contractor shall at all times have a sufficient quantity of appropriate materials and equipment, on site and shall use them as necessary

- for sheeting excavations and for sustaining, or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened.
2. Pipes and underground conduits exposed as a result of Contractor's operations shall be adequately supported along their entire exposed length by timber or planking, installed in such manner that the anchorage of the supporting members will not be disturbed or weakened during the backfilling operation. Backfill of selected material shall be carefully placed and tamped under and around the pipe, or conduit as the supports are removed.
 3. The Contractor shall take all risks attending the presence, or proximity of pipes, poles, power lines, wires, structures, or other property, of every kind and description, in or over the excavation, or in the vicinity of the Work, whether above or below the surface of the ground; and shall be responsible for all damages and assume all expenses for direct, or indirect, injury, caused by the work, to any of them, or to any person, or property by reason of them or by reason of injury to them, whether such structures are, or are not indicated on the Drawings.
 4. Where necessary, in order to keep one side of the street or roadway free from any obstruction or to keep the material piled alongside the excavation from falling on private property outside the rights-of-way, safe and suitable fence shall be placed alongside the excavation.
 5. In the event of encountering subsurface dangerous conditions, or where passing especially heavy structures, which by their construction or position might bring a great pressure upon the excavations, the right is reserved by the Engineer to require that such structures shall be underpinned, or supported and protected, or that special sheeting shall be driven in such a manner and to such depth, as may be approved or that only a short length of excavation shall be opened at one time; and, if necessary, that the excavation shall be securely sheeted and braced on all sides, after the manner of a shaft, and that the permanent work shall be constructed in the same way and the shaft backfilled before another opening is made. Work performed as required above shall be at the cost and liability of the Contractor.
 6. The Engineer reserves the right under such conditions to stop the excavation or any other part of the Work, and to require the Contractor to complete the structure and the backfilling up to such a point as the Engineer, without assuming responsibility for safety to persons or property, may require before proceeding further with the excavation. Contractor shall not receive additional compensation, other than an extension of the contract time for as many days as the Engineer may determine that the work was delayed by such stoppage.

F. Removal of Obstructions:

1. Except for removal/relocation/replacement of known utilities shown on the Drawings, remove unknown obstructions as specified below.
2. When during construction, the position of a previously unknown pipe, conduit, pole, structure or other obstruction(s), above or below the ground, is such that in the opinion of the Engineer, it must be removed, realigned, or replaced, the work of removal, realignment, or replacement will be performed by the Contractor as extra work, or it will be performed by the owner of the obstruction(s) without cost to the Contractor or the Owner. Contractor shall uncover and sustain the

obstruction, before such removal and before and after such realignment or replacement. Contractor shall be entitled to additional compensation, and when applicable, to an extension of Contract Times, in accordance with the Conditions of the Contract.

3. The Contractor shall, without extra compensation, break through and reconstruct, if necessary, the invert or arch of any sewer, culvert, or conduit that may be encountered, if the said structure is in such a position, in the judgment of the Engineer, as not to require its removal, realignment, or complete reconstruction.
4. The Contractor shall allow the Owner, or the owner(s) of obstruction(s) to implement such measures as they may deem necessary in order to protect, remove, realign, or replace their pipes, conduits, poles, or other obstructions. Performance of the work described above by others, shall not relieve the Contractor of its responsibilities under the Contract.
5. Trees in rights-of-way shall not be removed except by written authorization of the Engineer. The Contractor shall not receive extra compensation for hand excavation or tunneling required in the vicinity of trees that are to remain.
6. Shrubbery, which would interfere with the construction, shall be carefully removed, protected and replanted, or if damaged, shall be replaced without additional cost to the Owner.

G. Borrow Excavation: When the required quantity of suitable fill/backfill material exceeds the quantity of suitable on-site excavated material, provide borrow excavated material at no additional cost to the Owner. If borrow excavated material is needed, notify the Engineer sufficiently in advance to permit the Engineer to verify such need and to confirm the proposed borrow material's suitability. Engineer will approve, in writing, borrow excavated material prior to its use. All borrow fill/backfill shall meet the requirements of Item 2.01.A. of this Section.

H. Excess Excavated Materials: No right of property in materials is granted the Contractor of excess on-site excavated materials prior to backfilling. This provision does not relieve the Contractor of the responsibility to remove and dispose of surplus excavated materials, as well as the unsuitable materials such as sod, stumps and spongy soil, and excavated rock, which shall be removed by the Contractor and disposed legally off-site. Costs for loading, transportation and disposal of excess and unsuitable material, and of rock shall be included in the Contract Price.

I. Change of Excavation Location:

1. Should the Engineer require a change in location of excavation from that indicated on the Drawings due to the presence of an obstruction, or from other cause and such change is made before the excavation is begun, the Contractor shall not be entitled to extra compensation or to a claim for damages.
2. Should the Engineer require a change in location of excavation from that indicated on the Drawings, due to the presence of an obstruction or from any other cause, and if such changed location increases or decreases the quantity of excavation, then an adjustment will be made in the lump sum price bid under which the work was performed.

- a. The adjustment will be made by applying the unit price bid per cubic yard for Miscellaneous Unclassified Excavation.
- 3. If a change in excavation location, made at the request or with the approval of the Engineer, involves the abandonment of excavation already made, such abandoned excavation, together with the necessary refill will be classified as Miscellaneous Unclassified Excavation.
- 4. If a change of excavation location is authorized by Engineer, at the request of the Contractor, the Contractor shall not be entitled to extra compensation, and if such change of excavation location involves the abandonment of excavation already made, the abandoned excavation and refill shall be at the Contractor's expense.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Backfill: On-site, or borrow excavated soil or soil-rock mixed material free of topsoil, vegetation, lumber, metal and refuse; and free of rock or similar hard objects larger than six inches in any dimension, with the exception that highly plastic clays and silts will not be permitted. Rock to soil ratio shall not exceed one part rock to three parts soil.
- B. Aggregate Backfill: Select Granular Material (GAB) conforming to SHA Specifications.
- C. Aggregate Base Course: AASHTO No. 57 Type C or better Coarse Aggregate conforming to SHA Specifications.
- D. Structural Foundation Backfill:
 - 1. Concrete (2500 psi): Conforming to requirements of Section 03300.
 - 2. Aggregate Fill:
 - a. AASHTO No. 57 Coarse Aggregate conforming to SHA Specifications.
 - b. Select Granular Material (GAB) Aggregate conforming to SHA Specifications.
- D. Flowable Backfill: As specified in SHA Specification.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Perform soil erosion control work in accordance with requirements of Section 01560.
- B. Protect underground utilities in accordance with Section 02015.

3.02 EXCAVATION

A. General:

1. Perform excavation using machinery, except that hand excavation may be required where necessary to protect existing structures, buried utilities or private or public properties. No additional compensation will be paid for hand excavation required by field conditions, instead of machine excavation.
2. Perform excavation to the lines and grades or depths indicated on the Drawings and as specified herein.
3. Where work space is limited, remove excavated material from the limited area and replace the material after the structure has been installed. No additional compensation will be made for such removal and replacement.
4. Extend excavation a sufficient distance from footings, and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for inspection.

B. Rock Excavation: Remove rock below subgrade that is shattered due to rock removal operations and in the opinion of the Engineer is unfit for foundations. Fill to subgrade with Structural Foundation Backfill those areas where shattered rock has been removed. Perform such backfilling to the satisfaction of the Engineer. No separate or additional payment will be made for such removal and backfill.

C. Removal of Rock by Means Other Than Blasting: Where removal of rock by means other than blasting is required, remove by the use of mechanical surface impact equipment, or by drilling and hydraulic rock splitting equipment, or by other methods.

D. Excavation Below Subgrade:

1. Do not excavate below depths indicated on the Drawings or such depths as required by the Engineer.
2. Excavation below depths indicated on the Drawings or as required by the Engineer, through the fault of the Contractor, shall be restored to the indicated or required depths with Structural Foundation Backfill at the expense of the Contractor. Structural Foundation Backfill material as selected by Engineer.
3. If the foundation for any structure is required by the Engineer to be carried lower than plan subgrade elevation, the voids caused by this extra excavation shall be backfilled up to plan subgrade elevation with Structural Foundation Backfill.
 - a. Payment for this additional work will be made at the applicable unit prices bid for Miscellaneous Unclassified Excavation, and special Backfill.

E. Storage of Suitable Excavated Materials: If suitable materials are not used immediately, store or stockpile separately from unsuitable materials.

1. Mixing of various suitable materials, or mixing of suitable materials with unsuitable materials is not permitted.
2. On- or off-site stockpiling, or transportation of suitable materials shall be included in the Contract Price..

- F. Borrow Excavation: Perform excavation of borrow material in a manner satisfactory to the Engineer. Strip borrow pits of brush, trees, roots, grass and other vegetation prior to removal of material for use in backfill. During the excavation operation, grade the borrow area to ensure free drainage of water from the area. After completion of the excavation, grade the excavated area, including side slopes, to drain and present a uniformly trim appearance merging into the surrounding terrain. After borrowing operations are completed, regrade area, if necessary, to prevent erosion.
1. No additional compensation will be made for borrow material.

3.03 SUBGRADE PREPARATION

A. General:

1. Prior to construction of foundations or slabs on natural soils, and before placing new fill, proof roll subgrade with a loaded tandem-axle dump truck or a 10-ton vibratory roller under the observation of the Engineer, to check for any loose or unstable areas.
2. Remove soft, loose and disturbed materials and replace with structural foundation backfill.
 - a. Payment for this additional work will be made at the applicable unit prices bid for Miscellaneous Unclassified Excavation.
3. Do not place fill materials on surfaces that are muddy, frozen, or contain frost.
4. Trim bottoms to indicated lines and grades; leave solid base to receive other work.

B. Placement and Compaction:

1. Structural Foundation Backfill:
 - a. Concrete (2500 psi): Provide at locations indicated on the Drawings and where directed by the Engineer. Place in accordance with requirements of Section 03300.
 - b. Aggregate Fill:
 - 1) Provide at locations indicated on the Drawings and where directed by the Engineer.
 - 2) Maintain material in a moist condition during hauling, placing and compacting.
 - 3) Spread material uniformly without segregation of coarse and fine material.
 - 4) Place material in 8-inch layers and compact to 100 percent of the maximum dry density based on ASTM D698, Method C, with replacement of oversize material.
 - 5) One field density determination is required for each layer of material placed.
2. Flowable Fill: Provide at locations indicated on the Drawings and where directed by the Engineer.
3. Aggregate Base Course:
 - a. Provide beneath concrete slabs for structures as indicated on the Drawings.
 - b. Place directly on excavation bottoms and where required on completed structural fill.
 - c. Compact with a vibratory compactor to the satisfaction of the Engineer.

3.04 BACKFILLING

A. General:

1. Perform backfilling using machinery, except that hand backfilling may be required where necessary to prevent displacing walls, foundations, or buried utilities or damage to such. No additional compensation will be paid where backfilling by hand is required.
2. After completion of footings and walls and the removal of forms and prior to backfilling, remove trash and debris from excavated areas.
3. Refer to Section 02221 for locations where different types of backfill are used and for surface finishing.
4. Do not place Backfill material prior to seven days after completion of structure walls.
5. Do not place Backfill material on wet or frozen areas.
6. Do not operate heavy equipment closer to walls than a distance equal to the height of Backfill material above the top of the structure footing.
7. Do not place Backfill material against exterior walls until supporting floors or slabs at top of walls are in place.
8. Perform compaction using power driven tampers or compactors suitable for material being placed.

B. Backfill: Place Backfill in loose, uniform horizontal layers not exceeding six inches in depth.

1. Maintain moisture content of Backfill at compaction within two percent of optimum moisture as determined by ASTM D698.
2. Compact Backfill to at least 95 percent of the maximum dry density based on ASTM D698.

C. Aggregate Backfill: Place Aggregate Backfill in 4 inch layers and thoroughly compact each layer with a vibratory compactor to the satisfaction of the Engineer and the requirements of the SHA if required.

D. Flowable Fill: Place as specified in SHA Specification.

E. Cleanup: Remove and dispose excess excavated material off-site in a legal manner at no additional expense to the Owner.

3.05 FIELD QUALITY CONTROL

A. Testing: Performed by the independent testing agency as prior approved for laboratory testing.

1. In-place field density tests conducted in accordance with ASTM D1556, ASTM D2167, or ASTM D2922. If methods of ASTM D2922 are used for density testing, the moisture content must be determined as stated in ASTM D3017.

2. Perform at least one field moisture-density determination (test) for each layer of material placed.
 3. Test locations as directed by the Engineer.
 4. The Engineer may require additional tests to ensure that the specified density is being obtained.
- B. Corrective Measures: Whenever tests indicate that the field moisture or density does not meet specified requirements, take corrective action as approved by the Engineer.
1. Corrective measures may include loosening the soil and wetting or drying it prior to recompaction, additional compaction, or removing and replacing the material.
 2. Retest material that did not meet the moisture and density requirements after corrective measures have been performed.
 3. Corrective measures shall be at Contractor's expense.
- C. Retesting: The Engineer may at any time require retesting of any material, whether in stockpiles or being placed, if, in his opinion, the material differs from that which was previously been approved for use. Retesting shall be at Contractor's expense.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Trench Excavation for Piped Utilities.
- B. Trench Excavation for Electrical Work.
- C. Bedding and Backfilling.
- D. Surface Restoration.

1.02 RELATED SECTIONS

- A. Soil Erosion and Sedimentation Control: Section 01560.
- B. Traffic Regulations: Section 01570
- C. Protection of Underground Utilities : Section 02015
- D. Division 3 - Concrete.

1.03 DESCRIPTION

A. Definitions

- 1. Rock Excavation: Removal of consolidated hard mineral material in solid beds or masses, in original or stratified position, and boulders greater than one-half cubic yard in volume, which, in the opinion of the Engineer, must be removed by blasting, or mechanical/chemical wedging. Structure foundations of concrete or of masonry or stone laid in cement-mortar is classified as rock if the volume requiring removal at any single location exceeds one-half cubic yard.
 - a. Soft or disintegrated rock, which can be removed with a pick, or any material which can be broken down by sledge hammers, or any ledge or single boulder less than one-half cubic yard in volume, or loose, shaken or previously blasted rock, or broken stone in rock filling or elsewhere, or rock exterior to the line of measurement specified, shall not be classified as rock excavation.

- b. Items involved in the excavation such as sidewalks, curbs and street or roadway paving, of whatever material, shall not be classified as rock excavation.
- 2. Earth Excavation: Removal of materials of any kind in the excavation, which cannot be classified as rock excavation.
- 3. Earth Excavation Below Subgrade: Same as Earth Excavation except such excavation is performed below elevations given as subgrade.
- 4. Unclassified Excavation: Removal of materials of any kind in the excavation, including rock excavation.
- 5. Unclassified Excavation Below Subgrade: Same as unclassified excavation except such excavation is performed below elevations given as subgrade.
- 6. Miscellaneous Unclassified Excavation: Unclassified excavation required by the Engineer and not included in other items for payment.
- 7. Subgrade: Trench bottom prepared as specified to receive pipe bedding, concrete cradle or encasement, or the bottom of excavations prepared to receive pipeline structures or structure foundations.

1.04 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO T99, Moisture-Density Relations of Soils, Using a 5.5-lb. Rammer and a 12-in. Drop.
 - 2. AASHTO T191, Standard Method of Test for Density of Soil In-Place by the sand cone method.
- B. The SHA noted herein refer to sections contained in the SHA Specifications, July 2008, latest edition. The references pertain only to materials, construction equipment, methods and labor. The payment provisions do not apply to work to be performed under this Contract.

1.05 PROJECT CONDITIONS

- A. Classification of Excavated Materials: Under this Contract, all excavation is unclassified. No consideration will be given to the nature of materials, which may include rock, encountered in excavation operations, Therefore, as unclassified excavation, no additional payment will be made for difficulties occurring in excavating and handling of materials.
- B. Trench Work for Electrical:
 - 1. Requirements specified in this section for excavating, backfilling and compacting pipe line trench work shall also apply to excavation work required for electrical conduit installations.
 - 2. Exceptions to pipe line trench work requirements are as specified in this section.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Backfill Material (To Restoration Depth in Seeded Areas): On-site, or imported (borrowed), excavated material, free of cinders, ash, refuse, vegetable or organic material, boulders, rocks, stone, or other material which, in the opinion of the Engineer, is unsuitable. Backfill material may not contain stones larger than six (6) inches in maximum dimension. A maximum of 20% of the backfill volume may be stones so long as the stones are evenly distributed within the material. No additional payment will be made for imported materials.
- B. Aggregate Backfill and Bedding: Fine aggregates and coarse aggregates conforming to SHA Specifications. Material as listed below or shown on the Drawings.
 - 1. Pipe Bedding: (AASHTO No. 57).
 - 2. Initial Backfill: (AASHTO No. 57).
 - 3. Aggregate Backfill (To Restoration Depth in Paved Areas): CR-6 or GAB Coarse Aggregate where indicated on the Drawings.
- C. Flowable Backfill: As specified in SHA Specifications.
- D. Topsoil: On-site or imported, screened, fertile, friable, natural, productive surface topsoil; free of subsoil, clay, stones, or similar hard objects larger than 2 inches in greatest dimension, and partially disintegrated debris and materials toxic or harmful to growth.
- E. Lawn and Seed Mixture: As indicated on the Drawings.
- F. Underground Warning Tape:
 - 1. Printed, and alkali resistant, polyethylene tape, 3 inches minimum width, color coded, 1-inch minimum lettering, printed with name or symbol of utility buried below, and suitable for installation in all soil types. Magnetic type shall be manufactured with foil back or other means to enable detection, by a metal detector, when it is buried up to 4 feet deep.
 - 2. Magnetic.
 - 3. Provide for:
 - a. Sanitary sewers, green.
 - b. Storm sewers, green.
 - c. Water line, blue.
 - d. Electrical conduit, red.
 - e. Telephone conduit, orange.
 - f. CATV conduit, orange.

PART 3 - EXECUTION

3.01 TRENCH PREPARATION AND EXCAVATION

- A. Perform soil erosion control work in accordance with requirements of Soil Erosion and Sedimentation Control: Section 01560.
- B. General: Perform excavation to the lines and grades indicated on the Drawings and as specified in this section, or as directed by the Engineer.
 - 1. Excavation shall be made by open cut, unless written permission to tunnel or bore is given by the Engineer, or is specified or shown on the Drawings.
 - 2. Trenches may be excavated and backfilled either by machinery or by hand as the Contractor may elect; Contractor shall use hand excavation and backfilling when necessary to protect existing structures, utilities, or private or public properties.
 - 3. Contractor shall have no claim for extra compensation for performing hand instead of machine excavation and backfilling.
- C. Stripping, Storing and Restoring Surface Items: Contractor shall remove all paving, sub-paving, curbing, brick or concrete pavers, granite curbing or other similar materials, and shall grub and clear the surface over the area to be excavated. Properly store and preserve such materials that may be required for use in restoring the surface. Contractor shall replace materials damaged or disposed due to Contractor's negligence, with materials of equal or better quality, at no cost to the Owner.
 - 1. All suitable excavated materials may be stored, if practical, in the roadway or such other suitable place and in such manner as the Engineer will approve. Unsuitable materials will be removed and disposed off-site.
 - 2. Excess suitable materials remaining after the trenches have been backfilled, which cannot be stored on site, shall be removed and stored at a suitable site, provided by the Contractor, at no additional cost to the Owner.
 - 3. Contractor shall bring back as much of suitable and other removed materials as may be required to properly refill trenches or restore areas disturbed by construction operations, at no additional cost to the Owner.
 - 4. Contractor shall furnish additional suitable materials to properly refill the trenches, when on site excavated material is unsuitable or of not sufficient volume, at no additional cost to the Owner.
 - 5. Contractor shall restore shrubbery, fences, poles or other property and surface structures, removed or disturbed by construction operations, to a condition equal to or better than that before the Work began, furnishing all necessary labor and materials, without additional cost to the Owner.
 - 6. Engineer may mark certain trees, shrubs, or other items that are not to be disturbed or damaged. In the event such items are disturbed or damaged, they shall be replaced or compensated for at the Contractor's expense.
 - 7. Tree(s), approved by the Engineer for removal, shall be cut into four-foot lengths and stacked next to the pipeline right-of-way and, unless otherwise indicated on the Drawings or the Specifications, shall become the property of the landowner.

- D. Width of Trench: Pipe trenches shall be sufficiently true in alignment to permit the pipe to be laid in the approximate center of the trench. The trench shall be wide enough to provide a free working space on each side of the pipe; however, the trench width at least 12 inches above the top of the outside barrel of the pipe shall not exceed pay-line dimensions in the following table. Payment shall be made for trench widths not to exceed the pay-line dimensions shown below.

MAXIMUM PAY-LINE WIDTHS

Nominal Pipe Diameter (Inches)	Aggregate Backfill and Temporary Pavement (Trench Width Inches)	Final Pavement Restoration and Reseeding over Trench (Width Inches)
2 and smaller	18	42
3	24	48
4	24	48
6	24	48
8	24	48
10	28	52
12	30	54
14	32	56
15	33	57
16	34	58
18	36	60
20	40	64
21	42	66
24	48	72
27	54	78
30	60	84
33	63	87
36	66	90
42	75	99
48	84	108
54	90	114
60	96	120
66	106	130

1. At manholes, valve pits, and other structures, the pay-line shall be measured as one (1) foot outside the wall for excavation and eighteen (18) inches outside the wall for restoration.
2. Where sheeting and shoring are used, the maximum allowable width of trench shall be measured between the closest interior faces of the sheeting or shoring as placed.
3. When the maximum trench width below the top of the pipe is exceeded, Engineer may order Contractor, to cradle or encase the pipe in concrete in order to ensure the structural integrity of the pipe. This work shall be at Contractor's expense.

4. When the maximum width of trench specified cannot be maintained, Contractor shall install temporary sheeting at no additional cost to the Owner.
5. Where a line is to be constructed within a right-of-way or easement in open areas, the specified maximum width of trench at the top may be exceeded, provided the construction is confined entirely within the limits of the right-of-way or easement and the Work can be performed without damage to adjoining property. The angle of slope shall be such that the trench bank will remain stable, without sliding; maximum angle of slope shall be one-half horizontal to one vertical.
6. In locations other than rights-of-way or easements, the Engineer may, as warranted by working conditions, and where permitted by Federal or State safety requirements, waive the requirements specified for exceeding the maximum width at the top of trench.
7. When Engineer waives the maximum width requirements at the top of trench the Contractor will not be entitled to additional compensation beyond the specified trench widths.
8. When the Engineer requires the Contractor, in writing, to excavate beyond the maximum allowable trench width, the Contractor shall be reimbursed for the quantity of material excavated beyond the specified trench widths in accordance with the applicable unit price bid for Miscellaneous Unclassified Excavation.

E. Trench Width and Depth for Electrical Work:

1. Excavate trenches for both single and banked conduit runs to vertical lines not exceeding maximum trench pay-line widths specified for piping, to accommodate the conduit or conduits width.
2. Excavate trenches for both single and banked conduit runs to elevations indicated, and where not indicated, to the depth required to provide a minimum of two feet of cover unless indicated otherwise on Drawings.

F. Length of Trench:

1. Trench shall not be opened more than 100 feet in advance of the pipelines laid.
2. Contractor shall limit all trench openings to a distance commensurate with all rules of safety.
3. When Contractor stops the Work, either totally or partially, Contractor shall refill the trench and temporarily repave over it at his expense and the trench shall not be opened until he is ready to proceed with the construction of the pipeline.
4. When Owner stops the Work, either totally or partially, Contractor shall, if directed by Engineer in writing, refill the trench and temporarily repave over it or use other Engineer-approved method to cover the trench. The trench shall not be opened until Engineer notifies Contractor in writing to proceed with the construction of the pipeline. Work required by this paragraph will be at Owner's expense; payment will be made at the appropriate unit prices bid.

G. Pumping and Draining: Contractor shall provide pumping equipment, or use other methods, to prevent water from accumulating in the trenches and other excavations.

1. When it is not possible to completely dewater the trench Engineer may authorize use of special pipe or jointing Products at no additional cost to the Owner.

2. Contractor shall have sufficient pumping equipment at all times during placement of pipelines.
 3. Grade the surface or provide diversion measures in the vicinity of excavation to prevent surface water from entering open trenches or excavations.
- H. Accommodations of Drainage: Contractor shall prevent storm or sanitary sewer systems from being obstructed and shall maintain flows in these pipelines at all times during construction operations.
- I. When the material excavated from the trenches must temporarily be placed over open drainage gutters or other waterways Contractor shall, at no additional cost, install a temporary bridge over the gutters, or provide other means for allowing water to flow through.
- J. Maintenance of Traffic: Work shall be conducted so as to cause a minimum of inconvenience to pedestrian and vehicular traffic and to private and public properties along the line of work. Contractor shall, at all times, maintain crossing, walks, sidewalks, and roadways open and safe to pedestrian and vehicular traffic, and shall keep fire hydrants, water valves, fire alarm boxes, and mail boxes accessible for use. When it is necessary to maintain pedestrian traffic over open trenches, provide a timber bridge at least three feet in width, equipped with side railings. When the excavated material will encroach upon sidewalks or private property, planking shall be placed in order to keep the sidewalk or private property clear of excavated material.
1. In important thoroughfares, highways, or in narrow streets, the material excavated from the trench shall be removed from the site, at Contractor's expense, in order to provide suitable space for traffic. Contractor shall, at no cost to the Owner, shall bring back as much of the approved material as necessary or shall furnish such other suitable materials as may be necessary to properly refill the trench.
 2. When it is necessary to haul soft or wet materials over public roadways Contractor shall provide suitable vehicles and shall conform to all laws and regulations relevant to such hauling.
 3. Where in order to keep one side of the roadway free from any obstruction or to keep the material stored alongside the trench from falling on private property outside the right-of-way, a safe and suitable barrier shall be placed alongside the trench.
 4. Refer to Section 01570 for traffic regulations.
- K. Blasting and Explosives: Not permitted in performance of trenching work.
- L. Protection of Utilities, Property and Structures: The existence and location of underground utilities indicated on the Drawings is to serve as a notification that such utilities exist in the general proximity of the work. Utilities not shown, or not located where shown, shall not relieve the Contractor of the responsibility for their protection during construction.
1. The Contractor shall notify all utility companies, through the Miss Utility System, in advance of construction, to locate their facilities in accordance with the laws in Maryland; and shall cooperate with agents of these companies during

performance of the Work. Procedures for emergency action and repairs to utilities shall be as established by the Act.

2. When the Contractor, during the progress of the excavation uncovers pipelines or conduits, which because of injury or age are in poor condition, Contractor shall immediately notify the owner of the utility in order that steps may be taken for replacement or repair. Contractor shall record locations and procedures of repairs made by Contractor.
3. Refer to Section 02015 for specific requirements for protection, repair, and payment for repair, of underground utilities.

3.02 PIPE BEDDING AND TRENCH BACKFILL

- A. Bedding: The trench shall be excavated to a depth of six (6) inches below the outside diameter of the pipe barrel, or deeper if so specified. The resultant subgrade shall be undisturbed, or compacted as approved by the Engineer if disturbed. The bedding shall then be prepared by placing a layer of thoroughly compacted aggregate bedding and initial backfill material, as specified, in uncompacted 4-inch to 12-inches thickness layers above top of pipe. Bedding shall provide uniform and continuous bearing and support for the pipe at every point between bell holes.
- B. Special Bedding:
 1. Unstable Subgrade: Where the bottom of the trench at subgrade is found to be unstable or to include ashes, cinders, any type of refuse, vegetable, or other organic material, or large pieces or fragments of inorganic material, which, in the opinion of the Engineer, should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth recommended by the Engineer.
 - a. Prepare subgrade, prior to installing pipe, by backfilling with aggregate material, in uncompacted 3-inch thickness layers, thoroughly tamped. Place bedding as previously specified.
 - b. Aggregate Backfill, when used at the direction of the Engineer, to stabilize trench subgrade, will be paid in accordance with the unit price bid for Miscellaneous Aggregate Backfill at the trench pay-line width specified, exclusive of the pipe bedding.
 - c. Additional excavation required to remove unstable material will be paid in accordance with the unit price bid for Miscellaneous Unclassified Excavation.
 2. Special Foundations: Where the bottom of the trench at the subgrade is found to consist of material which is unstable to such a degree that, in the opinion of the Engineer, it cannot be removed and replaced with an approved material thoroughly compacted in place to support the pipe properly, the Contractor shall construct a foundation for the pipe in accordance with plans prepared by the Engineer. Compensation for such additional work shall be in accordance with the Conditions of the Contract.
 3. Excavation in Fill: When the pipe is laid in fill, the compacted embankment shall be brought to a height of at least 9 inches above the proposed top of the pipe before the trench is excavated.

- C. Backfilling Methods:
1. General: Backfilling shall not be done in freezing weather except by permission of the Engineer, and it shall not be done with frozen material. Do not backfill when the material already in the trench is frozen.
 - a. Where aggregate backfill is not indicated on the Drawings or specified, but in the opinion of the Engineer it should be used in a part of the Work, the Contractor shall furnish and backfill with aggregate as directed.
 - b. Payment will be made in accordance with the unit price bid for Miscellaneous Aggregate Backfill.
- D. Pipe Bedding Beneath and to Centerline of Pipe: All trenches shall be backfilled, from the bottom of the trench to the centerline of the pipe with bedding material placed in uncompacted 4 inches thickness layers and compacted by tamping or other approved mechanical methods. Bedding material shall be deposited in the trench for its full width on each side of the pipe and fittings simultaneously.
- E. Initial Backfill Over Pipe: From the centerline of the pipe and fittings to a depth of one (1) foot above the top of the pipe, the trench shall be backfilled by hand or by approved mechanical methods. The Contractor shall use special care in placing this portion of the backfill so as to avoid injuring or moving the pipe. The backfill shall be placed in uncompacted 4-inch thickness layers and compacted by tamping or other approved mechanical methods.
- F. Aggregate Backfill to Restoration Depth (Roadways, Driveways and Other Paved Areas): From one (1) foot above the top of the pipe to restoration depth, the trench shall be backfilled by hand or by approved mechanical methods. Backfill in this section of the trench shall be coarse aggregate material subject to limitations specified and consolidated by tamping in four (4) inch layers or other approved mechanical methods unless otherwise specified. Any consolidation method utilizing water such as jetting or puddling shall not be permitted. Consolidation shall proceed from the center of the trench to the sides to prevent arching.
- G. Backfill Material to Restoration Depth (Seeded Areas): From one (1) foot above the top of the pipe to restoration depth, the trench shall be backfilled by hand or by approved mechanical methods. Backfill in this section of the trench shall be excavated material subject to limitations specified and consolidated by tamping in eight (8) inch layers or other approved mechanical methods unless otherwise specified. Any consolidation method utilizing water, such as jetting or puddling shall not be permitted. Consolidation shall proceed from the center of the trench to the sides to prevent arching. No extra payment for excavated material backfill will be given the Contractor.
- H. Flowable Backfill: Place as specified in SHA Specifications.
- I. Underground Warning Tape: Provide continuous identification tape in trenches for the purposes of early warning and identification of buried pipes during future excavation.

Install in tape accordance with manufacturer's instructions. Bury tape 12 inches below finished grade or as shown on the Drawings.

1. Provide in trenches for utilities indicated in Part 2.

J. Backfilling Trenches for Electrical Work:

1. Perform trench backfilling for conduits by methods, which will result in thorough compaction of backfill material without displacement of the conduit and minimum settlement of backfilled material. Settlement of backfill shall be considered evidence of improper workmanship or inclusion of unsuitable backfill materials, or both, and will require removing and recompacting settled material at no expense to the Owner.
2. Backfill conduits, not encased in concrete, to the level of planned subgrade using Excavated Backfill Material, placed in layers not exceeding 6-inches in thickness after compaction.
3. Backfill concrete encased conduits using Excavated Backfill Material placed in layers not exceeding 6-inches in thickness after compaction.
 - a. In trenches under paved areas, use Aggregate Backfill of classification by methods of placement as that specified previously for piping.

K. Compacting: During the course of backfilling and compacting work, the Engineer may, at any location or depth of trench, make tests to determine whether compaction operations meet specified requirements. Compact trench backfill as follows:

1. Lawn Areas: Use mechanical tampers to compact backfill materials in trench to produce a density of backfill, at the bottom of each layer, of not less than 90 percent of maximum density obtained at optimum moisture content as determined by AASHTO T99.
2. Paved Areas: Place material in lifts not exceeding 8 inches in loose thickness and compact to a 95% maximum dry density based on ASTM D1557, modified proctor.
3. Perform field determinations of density, when requested by the Engineer, in accordance with AASHTO T191.

3.03 RESTORATION AND CLEAN-UP OF SURFACE

- A. Replacement or Restoration of Surface Items: The Contractor shall restore (unless otherwise stipulated) all sidewalks, curbs, gutters, shrubbery, fences, poles, sod or other property and surface structures removed or disturbed as a part of the work to a condition equal to or better than that before the work began, furnishing all incidental labor and materials.
 1. Replacement of curbs and sidewalks, shall be in accordance with the materials and methods specified in Section 02500 and as detailed on the Drawings.
- B. Pavement Replacement: As specified in Section 02500 - Paving and Surfacing.
- C. Clean-Up and Maintenance of Surfaces:

1. General: During construction, the surfaces of all areas including, but not limited to, roadways and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition. Streets shall be swept and flushed after trench backfilling, and recleaned as dust, mud, stones and debris, caused by or related to the Work, again accumulates. Failure of the Contractor to perform this work shall be cause for the Engineer to order others perform the work, and backcharge all costs to the Contractor.
 - a. Surplus materials and temporary structures furnished by the Contractor shall be removed from the site by the Contractor.
 - b. Construction debris and excess excavated material shall be disposed of by the Contractor in a manner and place acceptable to all governing agencies.
 - c. The construction site shall be left clean at the end of each working day to the satisfaction of the Engineer.
 - d. Surplus materials furnished by the Owner and delivered to the site by the Contractor shall be removed and delivered by the Contractor to a location designated by the Owner.
 2. Repair or Correction of Unsatisfactory Conditions: All unsatisfactory conditions resulting from the work shall be corrected.
 3. Abnormal or dangerous condition caused by the Work, on any surface, shall be repaired or corrected within two hours of observance or notification of its existence. Failure of the Contractor to perform this work within this period shall be cause for the Engineer to order others perform the work, and backcharge all costs to the Contractor.
 - a. There will be no additional payment made for maintenance work.
- D. Restoration of Lawns, Meadows, and Cultivated Fields:
1. General: Final restoration of all areas shall be performed in accordance with the specifications for the particular land use.
 - a. Final restoration shall be performed no later than the start of the next planting season following construction. The planting season shall be as established on the drawings.
 - b. Topsoil shall be screened free from subsoil, brush, weeds, or other litter, clay lumps and stones, but may contain decaying vegetable matter as is present in good topsoil.
 - c. Precautions shall be exercised to conform with laws relating to erosion and sediment control.
 - d. Seed shall be not more than two (2) years old. Germination tests of seeds shall be made not more than six (6) months prior to seeding. Seed, which has become wet, moldy or otherwise damaged, shall not be used.
 - e. Submit all seed mixtures to the Engineer for approval prior to seeding.
 - f. Contractor shall be responsible to produce a stand of grass in all seeded areas. Erosion, drought, or any other condition encountered shall not relieve the Contractor of this requirement.
- E. Lawn Restoration: All disturbed areas, whether inside or outside the pay-lines shall receive a minimum of 6-inches of topsoil, and the surface hand raked, stones removed and natural drainage features provided and/or restored prior to the application of seed.

The Contractor shall restore all disturbed areas to a condition equal to or better than prior to construction.

END OF SECTION

SECTION 02260
FINISH GRADING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Soil and Seed Materials.

1.02 RELATED SECTIONS

- A. Site Grading: Section 02210

1.03 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Packaged Products shall indicate the manufacturer's guaranteed analysis on each package and arrive on site as originally packaged and unopened.

1.04 REFERENCES

- A. American Society for Testing and Materials, ASTM C 602 Agricultural Liming Materials, Spec. for.

1.05 SUBMITTALS

- A. Soil Supplement Product Certification: Submit certificates certifying such products to have a guaranteed analysis in conformity with the Engineer approved laboratory soil supplement recommendations report.
- B. Seed Certification: Submit certificates or certifying tags indicating lawn seed mixture, seed purity percentage, seed germination percentage and weed seed content percentage to certify conformity with the Specifications.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged products to the site in unopened containers with labels intact and legible.
- B. Store packaged products in such a manner to prevent moisture damage and other forms of contamination.

1.07 SITE CONDITIONS

- A. Environmental Requirements: Do not perform Work of this Section when soil or weather conditions are unsuitable. Unsuitable conditions include moisture saturated or frozen in place soil and precipitation of any kind present or occurring during the Work.
- B. Seeding Dates: The following dates shall govern except when environmental conditions warrant, the Engineer may extend the seeding dates.
 - 1. Spring: March 1 to June 1.
 - 2. Fall: August 1 to October 1.
- C. Existing Conditions: Following performance of related construction and prior to finish grading, do such debris removal and site leveling as necessary in preparation for Finish Grading. Dispose of such debris legally off site.
- D. Dust Control: Exercise the necessary means and methods to control dust on the site as well as in the off site work areas where Topsoiling and Finish Grading are required.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: Use fertile, friable, natural, productive surface soil such as is available on site (if any). Use topsoil free of subsoil, clay, stones or similar hard objects larger than 2 inches in greatest dimension and partially disintegrated debris and materials toxic or harmful to growth.
- B. Borrow Topsoil: Use productive topsoil from Contractor's source and of a quality meeting the requirements specified above for Topsoil. Provide borrow topsoil only if quantity of stripped and stockpiled, or other acceptable on-site topsoil is not sufficient at no additional cost to Owner or Engineer.
- C. Gravel and polyethylene Sheeting: Crushed aggregate or river gravel of one uniform color throughout and sized from 90 to 100% of the material passing a one-inch sieve, 100% passing the 1-1/2 inch sieve, 25 to 60% passing the 1/2 inch sieve and 0 to 10% passing the #4 sieve. Spread gravel on black polyethylene film of at least 10 mils thickness.

2.02 SOIL SUPPLEMENT MATERIALS

- A. Agricultural Liming Materials: Products containing calcium and magnesium compounds capable of neutralizing soil acidity and containing not less than 80% of total carbonates. Use liming materials meeting requirements of ASTM Designation C602

and conforming to applicable state liming material regulations.

- B. Fertilizer: Commercial fertilizer of uniform composition, free-flowing and in conformity with applicable state fertilizer laws.

1. Analysis: As recommended by a local AAN member nursery.

2.03 LAWN AND SEED MATERIALS

- A. Grass Seed: New crop seed, furnished in sealed packages with proof of correct mixture evidenced, age of seed indicated and compliance with applicable state regulations evidenced if required. Seeds and mixture as follows:

<u>Species in Mix</u>	<u>Mix % by Weight</u>	<u>Min % Purity/Germination</u>		<u>Max % Weed Seed</u>
Kentucky 31, Tall Fescue	40	90	90	0.50
Kentucky Bluegrass	40	85	80	0.40
Perennial Ryegrass	20	90	90	0.50

- B. Lawn Mulch: Straw Stalks of any threshed grain or tall hay grass stalks free from seed bearing stalks or roots harmful to lawn growth. Mulch material containing noxious weeds, decomposed material or brittle weed material is not acceptable.

- C. Mulch Binder: Emulsified asphalt conforming to the requirements of AASHTO M 140, Grade RS-1 and which does not contain solvents or other diluting agents toxic to plant life.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Perform site grading as specified in Section 02210.

3.02 PERFORMANCE

- A. Placement: Place topsoil over areas indicated for new grading contours. However, before topsoil placement, construction work in topsoiled areas shall have been completed. Observe precautions as follows:
1. Do not place topsoil over areas indicated to receive paving or walkways.

2. Do not work topsoil while frozen or wet. Do not work topsoil in a dusting condition but moisten same to prevent a dust nuisance.
 3. Scarify subsoil to a depth of 2 inches for bonding topsoil with subsoil.
 4. On sloped areas, work topsoil into subsoil to blend so as to eliminate any semblance of slip-planing between the two soils; but leave a sufficient cover of topsoil to insure seed germination. Perform such blending of soils by ridging or serrating the subsoil on the slopes.
 5. Place topsoil as needed for dressing-up minor depressions due to settling and erosion and to eliminate any other minor irregularities.
- B. Finished Elevations and Lines: Grade topsoiled areas of the site to within a tolerance of plus or minus one-tenth of a foot of the elevations and lines indicated and in accordance with the following:
1. Grade a uniform longitudinal fall in swales and other surface drainage areas to provide a drainage flow line that can easily be maintained and traversed with normal lawn maintenance equipment.
 2. Establish finish grade of topsoil 1/2 to 3/4 inch below top of abutting walks or paving to provide positive drainage of same.
 3. Do not finish grade topsoil to a depth less than 6 inches nor greater than 12 inches.
 4. Leave finish grade surfaces free of objectionable material larger than 2 inches in greatest dimension. Dispose of such objectionable material in a legal disposal area off site.
- C. Compaction: Compact finish grades as the final operation using a light roller weighing not over 120 pounds per foot-width of roller.
- D. Tillage: Till finish graded soil over areas indicated for lawn regardless of type of lawn work performed. Use equipment and methods common to such work, and till soil to a two-inch depth minimum.
- E. Soil Supplement Addition: The soil supplements for lawn areas, as required according to the Engineer approved laboratory test reports, may be incorporated into the soil during tillage operations.
- F. Seeding: Sow seed mixtures when air current is low and not more than five days after soil supplements have been applied. Sow seeds in two applications using either mechanical power seeders or mechanical hand seeders. Sow one-half of the seed mixture in one direction over designated areas and the remainder at right angles to the first sowing. Seeding rates as follows:
1. Grass Seed Mixture: 5 pounds per 1,000 sq. ft. areas.
- G. Seed Cover: Imbed seed mixtures into topsoil 1/4 inch using a light drag or rake and moving in directions parallel to the contour lines. Immediately after dragging or raking, compact seeded areas using a cultipacker or similar design lawn roller, weighing 60 to

90 pounds per linear foot of roller, and roll at right angles to existing slopes.

- H. Contractor Option: Seeding and soil supplement application may be performed by the hydroseeding method. However, rates of application, methods and equipment shall receive Engineer's prior approval.
- I. Lawn Mulching: Evenly apply mulch over seeded areas not more than 48 hours after seeding. Start mulching at windward side of relatively flat areas, or at the upper part of slopes. Spread mulch in a total coverage at a depth not less than 1-1/2 inches nor more than 3 inches.

3.03 MAINTENANCE

- A. Maintenance operations shall begin immediately after seeding and shall continue throughout the construction time and one year guarantee period. In general, maintenance shall include weeding, controlling insects and diseases and performing other particular operations as follows:
 - 1. Keep seed moist continually for proper germination and water thereafter as necessary to prevent drying out or burning. Reseed areas not showing a prompt catch of grass, correct depressions and irregularities and reseed; repeat until a complete coverage is obtained.
 - 2. Cutting of seeded areas at required intervals to maintain grass at a maximum height of 2-1/2 inches will be performed by the Owner.
- B. At conclusion of maintenance period, the Engineer shall make an inspection of the lawn work to determine condition of acceptance. Make such additional repairs as required by the Engineer. Perform such work at no expense to the Owner.

END OF SECTION

SECTION 02361

TIMBER PILES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Materials and installation of round timber piles.

1.02 SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details for piles, including details of driving shoes, tips or boots, and pile head protection.
 - 1. Include arrangement of static pile reaction frame, test and anchor piles, equipment, and instrumentation. Submit structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Round timber pile treatment data as follows, including chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material:
 - 1. For each type of preservative-treated timber product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For waterborne-treated products include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
- C. Warranty of chemical treatment manufacturer for each type of treatment.
- D. Welding Certificates: Copies of certificates for welding procedures and personnel.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- F. Pile-Driving Equipment: Include type, make, maximum rated energy, and rated energy per blow of hammer; weight of striking part of hammer; weight of drive cap; details, type, and structural properties of hammer cushion; and details of follower and jetting equipment.
- G. Static Pile Test Reports: Submit within two days of completing test.
- H. Driving Records: Submit within two days of driving.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing piling similar in material, design, and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services for piles that are similar to those indicated for this Project in material, design, and extent.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- D. Welding Standards: Qualify welding procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver piles to Project site in such quantities and at such times to ensure continuity of installation. Handle and store piles at Project site to prevent breaks, cuts, abrasions, or other physical damage.
 - 1. Do not drill holes or drive spikes or nails into pile below cutoff elevation.

PART 2 - PRODUCTS

2.01 TIMBER PILES

- A. Round Timber Piles: ASTM D 25, unused, clean peeled, one piece from butt to tip; of the following species and size basis:
 - 1. Species: Southern yellow pine.
 - 2. Size: 10-inch and 8-inch tip and natural taper.
- B. Pressure-treat round timber piles according to AWWA C3 and AWWA C14 as follows:
 - 1. Service Condition: Marine, dual treatment.
 - 2. Treatment: Dual treatment consisting of waterborne preservative, followed by creosote or creosote solution.
 - 3. Do not use chemicals containing arsenic or chromium.

2.02 PILE ACCESSORIES

- A. Driving Shoes: Fabricate from ASTM A569/A569M, hot-rolled carbon-steel strip to suit pile-tip diameter, of the following type and thickness, and secure to pile tip so as to not affect pile alignment during driving.
 - 1. Type: Arrow point.

2. Thickness: 1/4 inch.

- B. Strapping: 1¼-inch wide, 0.031-inch thick, cold-rolled, heat-treated steel; painted and waxed.

2.03 FABRICATION

- A. Pile Lengths: Pile lengths will be verified by Architect after submitting static pile test reports.
- B. Pile Tips: Cut and shape pile tips to accept driving shoes. Fit and fasten driving shoes to pile tips according to manufacturer's written instructions.
- C. Pile Butt: Trim pile butt and cut perpendicular to longitudinal axis of pile. Chamfer and shape butt to fit tightly to driving cap of hammer.
- D. Strapping: Securely fasten two straps approximately 18 inches and 24 inches from pile butt. Encircle pile twice, tension strap by hand-operated or pneumatic tensioner, and clip to pile.
- E. Field-Applied Wood Preservative: Treat field cuts, holes, and other penetrations according to AWWPA M4.
 - 1. Coal-tar roofing cement for treating drilled holes or sealing cutoffs shall be free of asbestos.
- F. Pile-Length Markings: Mark each pile length with horizontal line at 12-inch intervals, and the distance from pile tip at 60-inch intervals.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Site Conditions: Do not start pile-driving operations until earthwork fills have been completed or excavations have reached an elevation of 6 to 12 inches above bottom of footing or pile cap.

3.02 DRIVING EQUIPMENT

- A. Pile Hammer: Air-, steam-, or diesel-powered type capable of consistently delivering driving energy to pile within range recommended by hammer manufacturer for length and weight of pile and character of subsurface material anticipated.
- B. Pile Hammer: Air-, steam-, or diesel-powered type capable of developing ultimate pile capacity indicated considering length and weight of pile and character of subsurface material anticipated.

- C. Hammer Cushions and Driving Caps: Between hammer and top of pile, provide hammer cushion and loosely fitted steel driving cap allowing rotation of pile without restraint recommended by hammer manufacturer.
- D. Leads: Use fixed or rigid-type pile-driver leads that will hold full length of pile firmly in position and in axial alignment with hammer. Extend leads to within 24 inches of elevation at which pile enters ground.

3.03 STATIC PILE TESTS

- A. General: Static pile tests will be used to verify design pile lengths and to confirm design load capacity of piles.
 - 1. Furnish test piles 60 inches longer than production piles.
 - 2. Actual length of piles will be based on results of static pile tests.
- B. Pile Tests: Arrange and perform the following pile tests:
 - 1. Axial Compressive Static Load Test: ASTM D 1143.
 - 2. Axial Tension Static Load Test: ASTM D 3689.
 - 3. Lateral Load Test: ASTM D 3966.
- C. Equip each test pile with two telltale rods, according to ASTM D 1143, for measuring deformation during load test.
- D. Drive test piles at locations indicated to a tip elevation below final cutoff elevation equal to pile length specified or, to refusal, whichever occurs first. Piles will be considered as driven to refusal when five blows of hammer are required to produce a total penetration of 1/4-inch or less.
 - 1. Allow a minimum of seven days to elapse after driving test piles before starting pile testing.
- E. Provide pile reaction frame, anchor piles, equipment, and instrumentation with sufficient reaction capacity to perform tests. Notify Engineer at least 48 hours in advance of performing tests. On completion of testing, remove testing structure, anchor piles, equipment, and instrumentation.
 - 1. Number of Test Piles: Two single piles and one group of three piles.
- F. Driving Test Piles: Use test piles identical to those required for Project and drive with appropriate pile-driving equipment operating at rated driving energy to be used in driving permanent piles.
 - 1. Pile Design Load: As indicated.
- G. Approval Criteria: Allowable design capacity of test piles shall be one-half of the load that results in the lesser of the following two values:
 - 1. Net settlement, after deducting rebound, of not more than 0.01 inch/ton of test load.
 - 2. Gross settlement of not more than 1 inch, provided that load-settlement curve shows no sign of failure.

- H. Driving Records: Prepare driving records for each test pile, compiled and attested to by a qualified professional engineer. Include same data as required for driving records of permanent piles.
- I. Test piles that comply with requirements, including location tolerances, may be used on Project.

3.04 DRIVING PILES

- A. General: Continuously drive piles to tip elevations or penetration resistance indicated. Establish and maintain axial alignment of leads and pile before and during driving.
- B. General: Continuously drive piles to elevations or penetration resistance indicated or established by static load testing of piles. Establish and maintain axial alignment of leads and pile before and during driving.
- C. Heaved Piles: Redrive heaved piles to tip elevation at least as deep as original tip elevation with a driving resistance at least as great as original driving resistance.
- D. Pile Splices: Splices will not be permitted.
- E. Driving Tolerances: Drive piles without pile heads exceeding the following tolerances:
 - 1. Location: 4 inches from location indicated after initial driving, and 6 inches after pile driving is completed.
 - 2. Plumb: Maintain 1 inch in 10 feet from vertical, or a maximum of 4 inches, measured when pile is above ground in leads.
 - 3. Batter Angle: Maximum 1 inch in 10 feet from required angle, measured when pile is above ground in leads.
- F. Withdraw damaged or defective piles and piles that exceed driving tolerances and install new piles within driving tolerances.
 - 1. Fill holes left by withdrawn piles that will not be filled by new piles using cohesionless soil material such as gravel, broken stone, and gravel-sand mixtures. Place and compact in lifts not exceeding 72 inches.
- G. Cutting off: Cut off butts of driven piles square with pile axis and at elevations indicated.
- H. Driving Record: Maintain accurate driving records for each pile. Include the following data:
- I. Driving Record: Maintain accurate driving records for each pile, compiled and attested to by a qualified professional engineer. Include the following data:
 - 1. Pile location in pile group and designation of pile group.
 - 2. Sequence of driving in pile group.
 - 3. Ground elevation.
 - 4. Final Elevation of tip after driving.

5. Records of redriving.
6. Cushion material and thickness.
7. Actual stroke and blow rate of hammer.
8. Pile-driving start and finish time; and total driving time.
9. Record of number of blows for each 12 inches of penetration, and number of blows per 1 inch for the last 6 inches of driving.
10. Pile deviations from location and plumb.
11. Record preboring, jetting, or special procedures used.
12. Record of unusual occurrences during pile driving.

3.05 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor shall engage a qualified independent testing agency to perform field quality-control testing.
- B. High-Strain Dynamic Monitoring: High-strain dynamic monitoring will be performed and reported according to ASTM D 4945 during initial driving and during restriking on the following number of piles:
 1. Number of Test Piles: 15 percent of piles.
- C. Low-Strain Integrity Measurement: Low-strain integrity measurements will be performed and reported for each pile.

3.06 DISPOSAL

- A. Remove withdrawn piles and cutoff sections of piles from site and legally dispose of them off Owner's property.

END OF SECTION

SECTION 02446
WOODEN FENCE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section includes the removal, salvage, and reinstallation of an existing wooden fence, along with the construction of a fence extension as shown on the drawings and described in the specifications.

1.02 SUBMITTALS

- A. Submit photos of the existing fence prior to removal to document condition and configuration.
- B. Submit product data for any new materials to be used in the extension.

1.03 QUALITY ASSURANCE

- A. Work shall match existing fence in type, size, material, spacing, and finish unless otherwise noted.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Salvaged Materials:
 - 1. Contractor shall carefully remove and salvage all reusable fencing materials including posts, rails, pickets, gates, and hardware.
 - 2. Damaged or deteriorated components shall be replaced in kind with new materials that match existing in size, material, and finish.
- B. Extension Materials:
 - 1. New posts, rails, and pickets for the fence extension shall match existing fence in style, dimensions, and appearance.
 - 2. Wood shall be pressure-treated or naturally decay-resistant species suitable for ground contact.
 - 3. Fasteners shall be corrosion-resistant (e.g., galvanized or stainless steel).

PART 3 - EXECUTION

3.01 REMOVAL

- A. Carefully dismantle the existing fence, preserving materials for reuse.

- B. Store salvaged materials in a secure, dry location on site to prevent damage.
- C. Remove existing fence posts entirely, including concrete footings if required, unless directed to remain.

3.02 REINSTALLATION

- A. Reinstall the existing fence to match its original alignment, height, spacing, and configuration using salvaged materials.
- B. Replace damaged or unusable components with new materials matching existing in type and finish.
- C. Set posts plumb and in concrete footings to a minimum depth of 24 inches or as shown on the plans.

3.03 EXTENSION

- A. Extend the fence at the location(s) shown on the plans, using materials and construction to match the existing fence.
- B. Ensure continuity of alignment, elevation, and style between existing and new fence sections.
- C. Install new posts with concrete footings as specified.

3.04 CLEANUP AND RESTORATION

- A. Remove and dispose of debris and non-salvageable materials.
- B. Restore all disturbed areas to their original condition or as otherwise specified.

END OF SECTION

SECTION 02480

LANDSCAPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Seeding and/or sodding required for disturbed areas

1.02 RELATED SECTIONS

- A. Site Grading: Section 02210.

1.03 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Packaged Products shall indicate the manufacturer's guaranteed analysis on each package and arrive on-site as originally packaged and unopened.
 - 2. For freshly dug plants, use nursery grown stock acclimated to the soil and climatic conditions in the local area of intended planting.
 - 3. Use plants grown under good nursery practices for a period of two full growing seasons in a State certified nursery.

1.04 REFERENCES

- A. American Association of Nurserymen, AAN American Standard for Nursery Stock.
- B. American National Standards Institute, ANSI Z60.1 Standard for Nursery Stock.
- C. American Society for Testing and Materials (ASTM):
 - 1. ASTM A53, Pipe, Steel, Black and Hot-Dipped, Zinc-coated Welded and Seamless.
 - 2. ASTM C602, Agricultural Liming Materials.
- D. Standardized Plant Names, latest edition, American Joint Committee on Horticultural Nomenclature.
- E. American Association of State Highways and Transportation Officials, AASHTO M140, Emulsified Asphalt.

1.05 SUBMITTALS

- A. Test Reports: Submit laboratory test reports of the soil analysis and supplement recommendations to the Engineer for approval prior to adding any soil supplements to the topsoil.
 - 1. Laboratory reports shall recommend both grade and application rates of fertilizer and such other soil supplements as required.
 - 2. Take sufficient quantity of topsoil samples to give a representative analysis of on-site topsoil and topsoil from outside sources, if any.
- B. Soil Supplement Product Certification: Submit certificates certifying such products to have a guaranteed analysis in conformity with the Engineer approved laboratory soil supplement recommendations report.
- C. Landscape Furniture: Submit manufacturer's descriptive product data and current specifications covering the prefabricated products and installation instructions for such.
- D. Seed Certification: Submit certificates or certifying tags indicating lawn seed mixture, seed purity percentage, seed germination percentage and weed seed content percentage to certify conformity with the Specifications.
- E. Sod Certification: Submit certificates certifying sod as complying with requirements of the Maryland Department of Agriculture.
- F. Plant Certifications: Submit plant material certificates certifying the plants to be typical of the species or variety and in conformity to the current edition of American Standard for Nursery Stock of the AAN.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged products to the site in unopened containers with labels intact and legible.
- B. Deliver plant materials to the site in a protected condition to prevent wind damage and drying. Plant material exhibiting a heated or sweated condition due to tight packing or poor ventilation is subject to rejection.
- C. Deliver plants with a securely attached waterproof tag legibly indicating the name and size in accordance with the AAN standards of practice. Provide at least one tagged plant in each bundle or lot. In all cases, botanical names shall take precedence over common names.
- D. Store packaged products in such a manner to prevent moisture damage and other forms of contamination.

- E. Store balled or wrapped and potted plants in accordance with the AAN practices to prevent drying out. Store bare rooted plants by the heeling-in-method immediately after delivery, or permanently plant such bare rooted plant, immediately after delivery.
- F. Prepare dug plants for handling and shipment with balled and burlapped (B&B) root systems. Perform B&B work in accordance with AAN Standards and in accordance with ANSI Z60.1 concerning diameter and depths of balls on B&B plants. B&B plants arriving at the site with broken, loose or fractured balls are subject to rejection.
- G. When handling sod during wet weather, allow sod to dry sufficiently to prevent tearing during handling and placing. During dry weather, water sod before lifting to ensure its vitality and to prevent soil dropping off in handling.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements: Do not perform Work of this Section when soil or weather conditions are unsuitable. Unsuitable conditions include moisture saturated or frozen in place soil and precipitation of any kind present or occurring during the Work.
- B. Seeding Dates: The following dates shall govern except when environmental conditions warrant, the Engineer may extend the seeding dates.
 - 1. Spring: March 1 to June 1.
 - 2. Fall: August 1 to October 1.
- C. Sodding Dates. The following dates shall govern except when environmental conditions warrant, the Architect may extend the sodding dates.
 - 1. Do not place sod between dates June 1 and August 15 inclusive nor times when ambient temperature is below 32 degrees F.
- D. Plant Setting Dates: The following dates shall govern except when environmental conditions warrant, the Engineer may extend the plant setting dates.
 - 1. Deciduous Trees (and Shrubs): October 15 to May 15.
 - 2. Evergreen Trees (and Crown Vetch): Spring - March 1 to May 15; Fall - August 1 to September 15
 - 3. Seedlings and Seedling Transplants: March 1 to May 15.
 - 4. Crown Vetch Seeding: Do not seed between dates September 1 and October 31, inclusive, nor times when ambient temperature is below 32 degrees F.
- E. Protection:
 - 1. Protect seeded areas from washouts by one of the methods specified in this Section. Should washouts and bare spots develop resulting from inadequate protection or otherwise, perform such reseeding as required until a healthy, complete coverage stand of grass is obtained.
 - 2. Protect sodded areas from becoming loose, torn or undermined by using stabilization products specified herein. Make repairs to sodded areas immediately and to the Engineer's satisfaction.

3. Use temporary barricades to protect lawn areas from foot traffic or other uses until a healthy, total coverage stand of grass is obtained. Barricade materials subject to Engineer's approval.
4. After plant setting work, install stake and guy supports on those plants indicated as being staked to prevent uprooting by wind or otherwise. Do not locate stakes and guy supports where pedestrian safety would be endangered.

1.08 WARRANTY

- A. Warranty trees and shrubs, for a period of one year after date of contract completion, against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Contractor's control.
- B. Remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period. Replace trees and shrubs which are in doubtful condition at end of warranty period.
 1. Replacement specimens shall be warranted for a period of one year after acceptance by Owner, in accordance with the Conditions of the Contract.

PART 2 - PRODUCTS

2.01 SOIL SUPPLEMENT MATERIALS

- A. Agricultural Liming Materials: Products containing calcium and magnesium compounds capable of neutralizing soil acidity and containing not less than 80 percent of total carbonates. Use liming material meeting requirements of ASTM Designation C602 and conforming to applicable state liming material regulations.
- B. Fertilizer: Commercial fertilizer of uniform composition, free-flowing and in conformity with applicable state fertilizer laws.
 1. Analysis: As recommended by laboratory soil supplement recommendations report.
- C. Bone Meal: Horticultural grade, pulverized bone meal containing minimums of 4 percent nitrogen and 8 percent phosphoric acid.
- D. Peat: Commercially available material consisting of shredded sedge peat and reed peat or sphagnum moss peat, or combinations of such, from fresh water sites. Peats in advanced stages of decay (parent material not identifiable) not permitted. Use peat having a minimum organic content of 80 percent organic matter by weight, a pH value of 4.5 to 6.0 and a maximum ash content of 15 percent.

2.02 LAWN AND SEED MATERIALS

- A. Grass Seed: As shown on plans.

2.03 PLANT MATERIAL

- A. Plant Stock: Provide plants of species indicated on the Drawings and true to type and name in accordance with the current edition of Standardized Plant Names, American Joint Committee of Horticulture Nomenclatures. Provide healthy plants free from insect infestations, typical of the species or variety, and which conform to the current edition of American Standard for Nursery Stock of the AAN for grading requirements; and ANSI Z60.1 for plant quality and minimum root spread.
- B. Minimum Acceptable Plant Sizes: Measure plants before pruning with branches in normal position; plant size shall conform to measurements indicated on the Drawings. Plants larger in size than indicated may be used, but at no change in Contract Price. If larger plants are used, proportionately increase the root ball or spread of roots in accordance with AAN rules.
- C. Container Grown Plants: Provisions of ANSI Z60.1 shall also govern container-grown plants. Provide container-grown plants of at least one year but not more than two years growth in the same container.
- D. Collected Plants: Provide collected plants of species and sizes indicated on the drawings and of such quality conforming to AAN Standards, except the root system or ball of collected plants shall be at least 25 percent larger than that specified for nursery grown stock.
- E. Refer to "Plant Schedule" on the plans.

2.04 MULCHING MATERIAL

- A. Lawn Mulch: Straw Stalks of any threshed grain or tall hay grass stalks free from seed bearing stalks or roots harmful to lawn growth. Mulch material containing noxious weeds, decomposed material or brittle weed material is not acceptable.
- B. Plant Mulch: Tanbark, a by-product of the tanning process, or Hardwood and Pine Bark consisting of ground or shredded bark, a fibrous material free from foreign material and substances toxic to plant growth.
- C. Mulch Binder: Emulsified asphalt conforming to the requirements of AASHTO M140, Grade RS-1 and which does not contain solvents or other diluting agents toxic to plant life.

2.05 PROTECTIVE MATERIALS

- A. Guard Posts: Schedule 20 black steel pipe conforming to ASTM A53 and concrete filled with Class B concrete conforming to the requirements as specified in Section 03300.
- B. Stakes and Wires: Rough-sawn straight-grained hardwood stakes, free of serious defect and of dimensions indicated on the Drawings. Use wires no smaller than No. 12 gauge galvanized steel with fabric reinforced rubber hose not less than 5/8-inch nor more than one inch O.D. of sufficient length to protect trees from damage by wire.
- C. Tree Wrap: Krinkle-kraft waterproof paper 30-30-30 in four-inch widths minimum. Use lightly tarred medium or coarse sisal yarn twine to tie tree wrap.

2.06 LANDSCAPE FURNISHINGS

- A. As shown on plans or approved equal.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Tillage: Perform tillage of finish graded soil over areas indicated for lawn regardless of type of lawn work performed. Use equipment and methods common to such work, and till soil to a two-inch depth minimum.
- B. Soil Supplement Addition: The soil supplements for lawn areas, as required according to the Engineer approved laboratory test reports, may be incorporated into the soil during tillage operations.
- C. Plant Pits: Prepare planting beds, plant trenches and plant pits to the depths required below finished grade according to the recommended practices of the AAN. However, the following minimum plant pit dimensions shall take precedence over the AAN if in conflict.
 - 1. Excavate plant pits with vertical sides and flat bottoms.
 - 2. Excavate plant pits large enough to allow a minimum of 12 inches beyond the circumference of the root system or ball and six to eight inches beneath the root system or ball.
 - 3. Excavate pits and trenches for bare root shrubs, vines or seedlings large enough to accommodate the root without crowding and to allow space for six inches minimum of backfill mix around the root system.
- D. Plant Beds: Prepare plant beds for ground cover by incorporating peat and the required soil supplements into the top 6 inches of existing topsoil. Incorporate peat into the topsoil in quantity equal to three inches of peat spread uniformly over the plant bed.

- E. Backfill Mix For Plant Pits: Prepare a mix consisting of one part peat to three parts excavated topsoil by volume and one pound of bone meal added for each cubic yard of excavated topsoil.

3.02 PERFORMANCE

- A. Seeding: Sow seed mixtures when air current is low and not more than five days after soil supplements have been applied. Sow seeds in two applications using either mechanical power seeders or mechanical hand seeders. Sow one-half of the seed mixtures in one direction over designated areas and the remainder at right angles to the first sowing.
- B. Seed Cover: Imbed seed mixtures into topsoil 1/4-inch using a light drag or rake and moving in directions parallel to the contour lines. Immediately after dragging or raking, compact seeded areas using a cultipacker or similar design lawn roller, weighing 60 to 90 pounds per linear foot of roller, and roll at right angles to existing slopes.
- C. Lawn Mulching: Evenly apply mulch over seeded areas not more than 48 hours after seeding. Start mulching at windward side of relatively flat areas, or at the upper part of slopes. Spread mulch in a total coverage at a depth not less than 1½ inches nor more than three inches.
- D. Mulch Binding: Immediately following mulch spreading, apply mulch binder to anchor mulch to the soil. The number of passes over the mulch as needed to secure it firmly shall not exceed three passes with maximum applied binder not exceeding ten gallons per 1,000 square feet.
- E. Sodding: Place sod on lightly irrigated soil during periods of high ambient temperature, otherwise lay sod as follows:
 - 1. Lay the first row of sod in a straight line with subsequent rows placed parallel and tightly against one another. Stagger lateral joints in all rows. Exercise care not to stretch sod or overlap joints.
 - 2. Immediately after placing sod, saturate sod with water to its full depth. After initial watering, tamp sod to firmly close seams using a tamper weighing not over 15 pounds with a face area of approximately one hundred square inches. Where sod slippage is evident, correct such without additional compensation.
- F. Sodding Drainage Areas: Place sod strips at right angles to water flow. At the point where water flow starts, turn the upper edge of the strip sod into the soil and compact a layer of topsoil over the juncture so as to conduct water over the sod.
- G. Sodding Slopes: Place sod strip lengths parallel to the slope contours starting at the bottom of the slope. Securely stake sod with 1/2 x 1 x 8 to 12-inch wood stake placed one stake for each two square feet of sod. Drive stake flush with top of sod and with wide face parallel to slope contour.

- H. Plant Setting Operations: Set plants to ensure that after settlement the plant stem projects from the soil as much as before transplanting. Set plants plumb and straight with allowance for settlement and in accordance with following:
1. Ground Cover Plants: Set each plant in a slight depression for catching rainwater and top-off such depressions with two inches of mulch spread uniformly and compacted. Thoroughly water groundcover bed immediately following planting.
 2. Balled & Potted Plants: Set each plant in prepared circular pits deep enough to accommodate a bed of topsoil not less than six inches deep under the ball or pot of shrubs and 12 inches under the ball of trees. Remove burlap from the top third of root balls, and completely remove ropes, twine and wires from root balls. Completely remove containers from potted plants, however, the earth shall remain unbroken around roots. Place Backfill Mix in plant pits under and around root balls in six-inch layers and tamp to eliminate voids. At the half-way point in backfilling, flood pit with water and continue backfilling after water dissipates. Backfill pits to grade, and build up a ring of soil three inches deep over edge of plant pit to facilitate maintenance watering. Place a two-inch layer of plant mulch within the ring prior to watering.
 3. Bare Root Plants: Set plants with root system properly spread out and work Backfill Mix among the roots. Cut off clean any broken or frayed roots. Backfill in six inch layers to grade using water to settle each layer. Form a ring of soil three inches deep over edge of plant pit to facilitate maintenance watering. Place a two-inch layer of plant mulch within the ring prior to watering.

3.03 PROTECTION INSTALLATION

- A. Wrapping: Immediately after planting, wrap the trunks of deciduous shade and flowering trees with Tree Wrap waterproof paper overlapping 1½ inches between the lowest main branches and the ground line. Tie wrapping at five places along the trunk including top, middle and bottom.
- B. Staking Trees: Within three days after planting, stake trees as detailed at perimeter line of root ball and to sufficient depth to hold tree rigid. Drive stakes vertically and not twisted or pulled. Place wire ties as indicated with protection (hose) at points of contact with bark. Stake trees as follows:
1. Stake trees up to two inches caliper with two stakes.
 2. Stake trees two inches caliper and larger with three stakes.
 3. Stake evergreen plants six feet and taller with two stakes.

3.04 PRUNING

- A. Prune new plant material to minimum necessary to remove injured twigs and branches and to compensate for loss of roots during transplanting, but never to exceed more than half of the branch structure. Pruning may be done before delivery of plants, but not before plants have been inspected and approved. Paint cuts over 3/4-inch in diameter with an approved tree-wound paint.

- B. Prune existing trees indicated to remain to remove all dead and interfacing branches. Remove lower branches to provide a minimum clearance five feet from finished grade. Paint cuts over 3/4-inch in diameter with an approved tree-wound paint.
- C. To repair small decay cavities in existing trees, remove decayed material to a depth which exposes healthy tissue. Shape cavities to provide drainage. Cover exposed cambium layers with clear shellac or tree-wound paint, to prevent drying and leave cavities open.

3.05 MAINTENANCE

- A. Maintenance operations shall begin immediately after seeding and planting is performed and shall continue throughout the guaranty period. In general, maintenance shall include weeding, applying mulch as needed, controlling insects and diseases and performing other particular operations as follows:
 - 1. Seeded Areas: Keep seed moist continually for proper germination and water thereafter as necessary to prevent drying out or burning. Reseed areas not showing a prompt catch of grass, correct depressions and irregularities and reseed; repeat until a complete coverage is obtained. Cut seeded areas at required intervals to maintain grass at a maximum height of 2¹/₃ inches.
 - 2. Sod: Perform daily watering if necessary for the establishment of the sod; water thereafter at frequencies required to maintain growth. Cut sod at required intervals to maintain a maximum height of 2½ inches.
 - 3. Plants: Water the plant root systems at regular intervals and keep surrounding soil in condition for promotion of root growth. Maintain and adjust stake wires if necessary and rewrap tree trunks when necessary. Perform pruning, other than initial pruning, as necessary to remove dead leaders and branches. Replace plants that are dead, unhealthy or in a badly damaged condition with like species plants. Do not make replacements during seasons definitely unfavorable for planting.
- B. At conclusion of construction period, the Engineer shall make an inspection of the landscaping work to determine condition of acceptance. Make such additional repairs and replacements as required by the Engineer. Perform such work at no expense to the Owner.

END OF SECTION

SECTION 02722
INFILTRATION TRENCH SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes all labor, materials, equipment, and incidentals necessary for construction of infiltration trenches, including stone reservoir layers, filter fabric, underdrain piping, and surface river stone, as shown on the plans and specified herein.

1.02 RELATED SECTIONS

- A. Submittals: Section 01300.
- B. Protection of Underground Utilities: Section 02015
- C. Trenching, Backfilling and Compacting: Section 02221
- D. Impervious Concrete Pavement: Section 3310

1.03 REFERENCES

- A. Maryland Department of the Environment (MDE) Stormwater Design Manual, Vols. I & II
- B. Maryland State Highway Administration (SHA) Standards Nos. 387.11, 387.12, 387.21, 387.21.01
- C. ASTM D448 – Standard Classification for Sizes of Aggregate
- D. AASHTO M288 – Geotextile Specifications

1.04 SUBMITTALS

- A. Product data and gradation for all aggregates
- B. Geotextile manufacturer's specifications and installation guidelines
- C. Pipe material certifications and perforation details

PART 2 - PRODUCTS

2.01 MATERIALS

A. AGGREGATE:

1. Reservoir Stone: ASTM No. 3 stone with a minimum of 40% voids, 12" Thickness; Clean, uniformly graded.
2. Choker Stone Course: AASHTO No. 8 stone, 1.5" thickness.
3. River Stone: Rounded 1-3" diameter; 6" thickness 1-ft wide adjacent to pervious concrete as shown on plan.

B. GEOTEXTILE

1. Nonwoven filter fabric, Class 2, AASHTO M288
2. Fully line excavation sides and bottom

C. UNDERDRAINS

1. 4" perforated HDPE pipe placed within stone reservoir as shown on plan
2. Cleanouts as shown on plan
3. Solid outlet 4" PVC pipe transition as shown on plan.

PART 3 – EXECUTION

3.01 EXCAVATION AND PREPARATION

- A. Excavate trench to required dimensions.
- B. Maintain level bottom and protect in-situ soils from compaction.
- C. Remove loose soil and debris.
- D. Prevent contamination by avoiding work during wet conditions.

3.02 GEOTEXTILE INSTALLATION

- A. Line all sides and bottom of trench with nonwoven geotextile.
- B. Overlap edges a minimum of 18 inches.
- C. Protect fabric from damage during construction.

3.03 STONE PLACEMENT

- A. Place 12" of No. 3 stone in 6" lifts.

- B. Maintain vertical alignment of underdrain pipe during backfill.
- C. Place choker course (No. 8) 1.5" thick and screed level.

3.04 PIPE INSTALLATION

- D. Lay 4" perforated pipe level or to specified slope
- E. Ensure pipe is continuously supported within the stone layer.
- F. Install required cleanouts; Protect ends with cap.
- G. Extend 4" PVC outlet pipe to daylight as shown on plan.

3.05 RIVER STONE INSTALLATION

- A. Place river stone at the surface as shown.
- B. Ensure even coverage and clean appearance.

3.06 COORDINATION WITH PERVIOUS CONCRETE

- A. Ensure choker course is placed and leveled just prior to concrete placement.
- B. Do not allow choker course to become contaminated.
- C. Concrete Pervious Pavement is specified separately under Section 03310.

END OF SECTION

SECTION 02840

TIMBER BOARDWALK CONNECTOR SYSTEM

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Work under this section includes all labor, materials, equipment, and services required to furnish and install a timber boardwalk connector from a concrete sidewalk to an existing boardwalk structure.
- B. Work includes, but is not limited to:
 - 1. Timber piles
 - 2. Structural framing
 - 3. Decking
 - 4. Guardrails and ADA-compliant handrails
 - 5. Connection to existing structures

1.02 RELATED SECTIONS

- A. Section 02361 – Timber Piles
- B. Section 03300 – Cast-In-Place Concrete
- C. Section 31 23 16 – Excavation

1.03 REFERENCES

- A. AWWA – American Wood Protection Association
- B. Southern Pine Inspection Bureau: SPIB Standard Grading Rules for Southern Pine
- C. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- D. ANSI A117.1 – Accessible and Usable Buildings and Facilities
- E. ADA Standards for Accessible Design
- F. IBC – International Building Code

1.04 SUBMITTALS

- A. Product data for:
 - 1. Pressure-Treated Lumber including:
 - i. Pressure treatment certifications conforming to AWWA standards
 - ii. Manufacturer warranties for treated wood products

2. Infill Mesh
3. Hardware and Fasteners
4. Geotechnical Fabric

PART 2 – PRODUCTS

2.01 TIMBER/LUMBER MATERIALS

- A. General: Provide lumber of allowable species, surfaced four sides (grade stamp S4S), with moisture content not exceeding 19 percent (grade stamp S-DRY), and grade stamped with the appropriate WWP or SPIB stamp indicating product compliance with PS 20-70.
 1. Lumber Standards: Furnish lumber manufactured to comply with PS 20 “American Softwood Lumber Standard” and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee’s (ALSC) Board of Review.
 2. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
 3. Piles:
 - i. Pressure-treated round timber piles conforming to AWWA UC4C.
 - ii. Refer to Drawings for sizes and lengths.
 4. Framing:
 - i. Pressure-treated structural framing lumber, grade #2 or better, conforming to AWWA UC4B or as indicated.
 - ii. Refer to Drawings for sizes and spacing.
 5. Decking:
 - i. Pressure-treated decking boards, grade #1, suitable for exterior pedestrian use.
 - ii. Refer to Drawings for thickness, width, and spacing.

2.02 GUARDRAIL AND HANDRAIL

- A. Guardrail framing and infill to comply with IBC and ADA requirements.
- B. Posts, top rails, and intermediate rails to be pressure-treated lumber, grade #1.
- C. Infill mesh: Aquamesh 2” X 4” black vinyl coated galvanized welded wire mesh.
- D. Handrail: ADA-compliant, pressure-treated wood, grade #1. Dimensions and configuration per Drawings.

2.03 FASTENERS AND HARDWARE

- A. General: Provide fasteners as indicated on drawings and where not indicated, provide fasteners appropriate to conditions at points of use and according to standard accepted Carpentry Trade practices.
- B. Exposed fasteners shall be stainless steel or hot-dip galvanized per ASTM A153, as shown on Drawings.
- C. Use screws for decking and bolts/connectors for structural framing.
- D. All hardware to be corrosion-resistant and appropriate for exterior use.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Verify field conditions, elevations, and alignment at the transition points.
- B. Coordinate with other trades and site conditions to ensure proper layout and drainage.

3.02 INSTALLATION

- A. Install piles to depths shown on Drawings and cut to required elevations (refer to section 02361).
- B. Erect framing, decking, and railings in accordance with manufacturer's instructions, project Drawings, and current accepted Carpentry Trade practices.
- C. Maintain consistent spacing and alignment throughout.
- D. Install guardrail, handrail, and infill mesh per code and Drawings.
- E. All field cuts shall be treated with copper naphthenate or approved equivalent.

3.04 CLEANING AND PROTECTION

- A. Remove construction debris and clean work area daily.
- B. Protect completed structure from damage until final acceptance.

END OF SECTION

SECTION 02855

PAVEMENT MARKING

PART 1 - DESCRIPTION

1.01 SECTION INCLUDES

- A. This work shall consist of furnishing and installing heat applied preformed thermoplastic pavement marking symbols, legends, and lines as specified in the Contract Documents or as directed by the Engineer.

PART 2 – MATERIALS

2.01 MATERIALS.

- A. Preformed Thermoplastic is a durable pavement marking material. All Preformed Thermoplastic Pavement Marking material shall be selected from the Qualified Products List.

Heat Applied Permanent Preformed
Thermoplastic Pavement Marking Material (951.06 of MD SHA Specifications)

PART 3 – EXECUTION

3.01 CONSTRUCTION.

- A. Quality Assurance/Quality Control. (Refer to 549 of the MD SHA Specifications)
- B. Application. The location, width, and type of marking, shall be as specified in the Contract Documents or as directed by the Engineer.

Applying pavement markings over longitudinal joints is prohibited; they shall preferably be offset 2 in. from them.

- C. Thermoplastic Pavement Marking shall conform to the following:
 - 1. Temperature. The markings shall be applied when the thermoplastic, ambient, and surface temperature, and relative humidity conform to the manufacturer's recommendations.

2. Color. The color of the dry markings shall match Federal Standard 595 (13538 - yellow or 17886 - white). The Contractor shall supply the specified color chips for the Engineer's use to visually determine that the thermoplastic material matches the specified color.
 3. Primer. When specified by the manufacturer, a primer shall be used if thermoplastic is applied to Portland cement concrete.
 4. Retroreflectance. The minimum retroreflectance shall be 150 millicandelas/lux/square meter for yellow and 250 millicandelas/lux/square meter for white as determined in conformance with 549.03.
- D. Packaging. The material shall be handled for shipping, unloading and storage as recommended by the manufacturer. Each shipping package shall be marked with the following information:
1. Manufacturer's name.
 2. Description of item.
 3. Date of manufacture.
 4. Contractor's name.
 5. Purchase order number.
 6. Lot number.
 7. Color.

END OF SECTION

SECTION 03100
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Formwork for cast-in-place concrete including form coating and form ties.

1.02 QUALITY ASSURANCE

- A. Design Criteria:
 - 1. Design, erect, support, brace, and maintain formwork according to the guidelines of ACI 347R to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Contractor shall be fully responsible for any damage or injury caused by inadequacy or failure of formwork.
 - 2. Maintain formwork construction tolerances complying with ACI 117.

1.03 REFERENCES

- A. Comply with the following American Concrete Institute (ACI) referenced standards, latest edition.
 - 1. ACI 117; Standard Specification for Tolerances for Concrete Construction and Products.
 - 2. ACI 301; Standard Specification for Structural Concrete.
 - 3. ACI 347R; Guide to Formwork for Concrete.

1.04 SUBMITTALS

- A. Product Data: Submit data for proprietary Products and items, including forming accessories, coatings, and others as requested by Engineer.

PART 2 - PRODUCTS

2.01 FORM PRODUCTS

- A. Forms:
 - 1. Earth cuts shall not be used as forms for vertical surfaces, unless approved by Engineer.

2. Panels: Plywood, metal, metal-framed plywood faced or other acceptable panel-type Products, to provide continuous, straight, smooth, exposed surfaces.
- B. Form Coatings: Form-release compound to facilitate form stripping that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces. Form release for steel forms shall include rust-inhibitors.
- C. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal.
 1. Provide units which will leave no metal closer than 1½" to surface.
 2. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Inspect and Clean: Thoroughly clean forms and adjacent surfaces to receive concrete. Split, frayed, delaminated, "patched" or otherwise damaged form facing material will not be acceptable for exposed surfaces.
- B. Coat contact surfaces of forms with a form-release compound before reinforcement is placed. Apply in compliance with manufacturer's written instructions.
- C. Do not allow excess form-release material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed.

3.02 ERECTION

- A. General: Construct forms in accordance with guidelines set forth in ACI 347R.
 1. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position, within tolerance limits of ACI 117.
 2. Coordinate formwork construction Products and installation such that concrete surface irregularities, designated by ACI 347R meets the requirements of Class A, B, or C indicated as final finish in Section 03300.
 3. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features required in work.
 4. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

3.03 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 48 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Concrete cast-in-place, including admixtures, design mix and finishing.

1.02 SUBMITTALS

- A. Concrete mix design
- B. Delivery tickets for concrete

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland Cement: ASTM C150 of the following Type(s):
 - 1. Type I, Normal.
- B. Normal Weight Aggregates: Meeting requirements of ASTM C 33.
- C. Water: Potable quality, clean and free of deleterious substances.
- D. Design Mixes: Provide normal weight concrete with the following properties, as indicated on drawings and schedules:
 - 1. 4,000 psi 28 day compressive strength: All cast-in-place concrete including but not limited to steps, driveways, and footings. Items excluded are specifically listed in following paragraphs.
 - 2. 3,000 psi 28 day compressive strength: Sidewalks, curbs, fill concrete.
 - 3. 2,500 psi 28 day compressive strength: Concrete encasement, pipe collars, thrust blocks, structural backfill.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare formwork in advance and remove debris from within forms
- B. Pre-position reinforcement, if any, in advance of concrete pours.

3.02 CONCRETE PLACEMENT

- A. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete" and as herein specified.

3.03 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 - 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
 - 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

END OF SECTION

SECTION 03310

PERVIOUS CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section includes pervious concrete pavement installed over a previously constructed infiltration trench (Section 2722). The work shall include the furnishing and placement of pervious concrete pavement, finishing, curing, and protection.

1.02 RELATED SECTIONS

- A. Submittals: Section 01300.
- B. Pervious Concrete Pavement: 03310

1.03 REFERENCES

- A. Maryland Department of the Environment (MDE) Stormwater Design Manual, Volumes I & II
- B. ACI 522R – Report on Pervious Concrete
- C. ACI 522.1 – Specification for Pervious Concrete Pavement
- D. ASTM C1688 – Standard Test Method for Density and Void Content of Freshly Mixed Pervious Concrete

1.04 SUBMITTALS

- A. Mix Design including:
 - 1. Aggregate gradation and source
 - 2. Cement and SCM content
 - 3. Water-cement ratio
 - 4. Target void content and unit weight
 - 5. Admixtures (if used)
- B. Manufacturer's product data for curing materials and formwork (if applicable)
- C. Certification of installer's training or experience with pervious concrete
- D. Field test reports (unit weight, void ratio, infiltration rates if required)

1.04 QUALITY ASSURANCE

- A. Concrete installer shall have Installer shall have experience with pervious concrete

- B. Trial batch and test panel required if requested

PART 2 - PRODUCTS

2.01 PERVIOUS CONCRETE MIXTURE

- A. Composition:
 - 1. Portland Cement: ASTM C150 Type I or II
 - 2. Coarse Aggregate: Clean, uniformly graded, 3/8" nominal maximum size, typically No. 89 or 8 stone
 - 3. Water: Potable and free of impurities
 - 4. Admixtures: Water reducers and hydration stabilizers may be used as recommended by supplier
- B. Proportions:
 - 1. Water-Cement Ratio: Between 0.27 and 0.34 (design range)
 - 2. Target Void Content: 15% to 25%
 - 3. Target Unit Weight: 115 to 135 pcf (ASTM C1688)
- C. Pre-Approval:
 - 1. Trial batch may be requested by Engineer prior to full placement
 - 2. All concrete to be supplied by a plant familiar with pervious concrete

PART 3 - EXECUTION

3.01 GENERAL

- A. Verify choker course is clean and level
- B. Protect choker course from contamination before concrete placement

3.02 COORDINATION WITH INFILTRATION TRENCH

- A. Subgrade and stone base installed under Section 02722
- B. Contractor shall not drive over choker course prior to placement

3.03 CONCRETE PLACEMENT

- A. Place pervious concrete within 60 minutes of batching.
- B. Discharge concrete directly from chute or buggy into place.
- C. Strike off surface to specified thickness
- D. Do not vibrate, trowel, or overwork surface.

3.04 FINISHING

- A. Provide a light roller finish to close the top surface uniformly.
- B. Do not seal surface voids or compress surface beyond intended compaction
- C. Ensure proper slope and cross-slope for drainage as indicated on drawings.

3.05 CURING

- A. Immediately after final placement and compaction, cover the pervious concrete with 7-mil thick polyethylene sheeting. Ensure edges are securely sealed to maintain constant moisture.
- B. Maintain continuous curing for a minimum of seven (7) days. No pedestrian or vehicular traffic shall be allowed on the surface during this period.
- C. Alternate curing compounds or methods may be used only if approved by the Engineer and shown not to form a membrane that blocks surface infiltration.
- D. Failure to cure as specified shall be cause for removal and replacement at the Contractor's expense.

3.06 FIELD QUALITY CONTROL

- A. Test fresh concrete for unit weight and void content per ASTM C1688.
- B. Infiltration testing may be performed per MDE guidelines post-installation.
- C. Replace or repair poorly cured or improperly placed sections at no additional cost.

3.07 PROTECTION

- A. Provide barriers and signage to prevent access to pavement during curing.
- B. Prevent sediment or debris from entering surface until fully stabilized.

END OF SECTION

SECTION 10250
BICYCLE RACKS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes the furnishing and installation of surface- or inground-mounted bicycle rack system for secure bicycle parking. Work shall include delivery and installation of Ribbon® Rack RB07; anchor mounting and placement; coordination with site layout and finishes.

1.02 RELATED SECTIONS

- A. Submittals: Section 01300.
- B. Cast-in-Place Concrete: 03300

1.03 REFERENCES

- A. Manufacturer's installation instructions

1.04 SUBMITTALS

- A. Product data and shop drawings for bike rack and hardware
- B. Manufacturer's warranty

PART 2 - PRODUCTS

2.01 MATERIALS

- A. BICYCLE RACK
 1. Manufacturer: Ribbon® Rack by Bike Parking Racks, or approved equal
 2. Model: RB07 – accommodates 7 bikes
 3. Finish: Hot-dip galvanized
 4. Inground anchor mount (standard)
 5. Optional surface flange mount:

- a) Contractor shall provide stainless or galvanized anchors per manufacturer recommendation.
- b) Minimum $\frac{3}{8}$ " diameter mechanical expansion or epoxy-set anchors for surface mount.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that installation area is prepared and clear of obstructions.
- B. Confirm footing location per plan and ensure sufficient space for access and bicycle maneuvering.

3.02 INSTALLATION – INGROUND MOUNT

- A. Excavate two holes per manufacturer's template – 8" diameter and 12"–48" deep (depth based on frost line).
- B. Install 1½" wood block beneath lower U-bends to maintain height during curing.
- C. Insert anchors (e.g., #3 rebar or 7/16" bolts) through holes near the base of each leg.
- D. Pour concrete and verify rack is plumb and level.
- E. Allow concrete to cure fully; remove support block after curing.

3.03 INSTALLATION – SURFACE MOUNT (if applicable)

- A. Locate rack per plans. Mark anchor hole locations through pre-drilled flanges.
- B. Drill holes into existing concrete pad per anchor specifications.
- C. Insert and torque anchors according to manufacturer's instructions.
- D. Verify final rack alignment and anchorage.

END OF SECTION

SECTION 16510
EXTERIOR LIGHTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section includes the requirements for the temporary removal, secure storage, protection, and resetting of existing municipally owned street light located within the construction area.

1.02 SUBMITTALS

- A. Removal and Resetting Plan, including schedule and method for temporary disconnection and storage.
- B. Documentation (photos) of existing condition prior to removal.
- C. Product data for any replacement parts, if applicable.

1.02 COORDINATION

- A. Contractor shall coordinate all removal and resetting activities with the Town of Indian Head's Public Works Department.
- B. Disconnection and reconnection of electrical service shall be performed only by qualified personnel approved by the municipality.
- C. Provide a minimum of 72 hours notice prior to any required municipal inspection, disconnection, or reconnection.

PART 2 - PRODUCTS

2.01 EXISTING MATERIALS

- A. All components of the existing street light system, including pole, luminaire, wiring, and base, shall be salvaged and reused unless otherwise directed by the municipality.
- B. Replacement parts, if required, shall match existing in type, size, and finish, and shall be approved by the municipality prior to installation.
- C. Provide protective padding or wrapping during removal and storage to prevent damage.

PART 3 - EXECUTION

3.01 REMOVAL AND STORAGE

- A. Disconnect power at an approved source under the direction of the municipal electrical authority.
- B. Carefully remove the street light components without damage.
- C. Cap and secure electrical conduit to prevent water or debris intrusion.
- D. Store all components in a secure, weather-protected area on-site or as directed by the municipality.

3.02 RESETTING

- A. Reset the street light in its original or new location as indicated on the construction drawings.
- B. Ensure all components are level, plumb, and securely anchored.
- C. Reconnect to power under the supervision or approval of the municipal electrical department.
- D. Confirm full operation of the luminaire, including photometric functionality and proper grounding.
- B. Pile Hammer: Air-, steam-, or diesel-powered type capable of developing ultimate pile capacity indicated considering length and weight of pile and character of subsurface material anticipated.
- C. Hammer Cushions and Driving Caps: Between hammer and top of pile, provide hammer cushion and loosely fitted steel driving cap allowing rotation of pile without restraint recommended by hammer manufacturer.
- D. Leads: Use fixed or rigid-type pile-driver leads that will hold full length of pile firmly in position and in axial alignment with hammer. Extend leads to within 24 inches of elevation at which pile enters ground.

3.03 CLEANUP AND RESTORATION

- A. Restore any disturbed ground, pavement, or landscape areas to pre-construction condition or as shown on the plans.
- B. Remove all debris and surplus material from the site.

- C. Final acceptance of street light reinstallation is subject to municipal inspection and approval.

END OF SECTION