

PROJECT MANUAL

For

BABCOCK DRAIN Maple Grove Township Saginaw County, Michigan

Prepared for



**Brian J. Wendling
Saginaw County Public Works Commissioner**

Prepared by:

LSG Engineers
& Surveyors
exceptional service

**3135 Pine Tree Road, Suite D
Lansing, MI 48911
517-393-2902**

Job Number: 2409

5 APR 2022

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For Bid Purposes Only

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DIVISION 0

**BIDDING REQUIREMENTS, CONTRACT FORMS
AND CONDITIONS OF THE CONTRACT**

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Brian J. Wendling
Public Works Commissioner
Governmental Center
111 S. Michigan Ave., Suite 103
Saginaw, MI 48602
Phone 989-790-5258
Fax 989-790-5259

BABCOCK DRAIN

NOTICE OF LETTING

DATE: WEDNESDAY, APRIL 13, 2022

TIME: 11:30 a.m.

**LOCATION: Saginaw County Courthouse, Room 200
111 S Michigan Avenue, Saginaw, MI 48602**

QUESTIONS: (989) 790-5258

The Saginaw County Public Works Commissioner will meet on the above date, time and location to receive construction bids for the Babcock Drain. Bids will then be opened and publicly announced.

The Work will be let in one (1) contract and includes clearing, re-shaping of existing roadside ditch, culvert removal and replacement, driveway removal and replacement, riprap placement, open channel excavation, and restoration.

In maintenance and improvement of said Drain, the following approximate quantities and type of open channel and enclosed pipe will be required:

918 Ft Roadside ditch reshaping,
1,268 Ft Open channel excavation,
2,046 Ft Spoil leveling,
1,500 Ft Spoil hauling,
246 Ft Remove existing 12" & 18" CMP,
350 Ft Furnish and install 57" span x 38" rise CSPA,
40 Ft Furnish and install 36" CSP culvert,
209.6 Sy MDOT plain riprap,
4 Ea Cross vane,
1 Ls Tree removal and disposal,
Remove and replace concrete and gravel drives,
Soil erosion and sedimentation control measures,
Traffic control, and Restoration

Payment for the above items and appurtenances will be based on the measured quantities furnished and installed.

Bids will be made and received in accordance with these documents. Bidding Documents, including plans and specifications may be examined, beginning on April 6, 2022 at the following locations:

Online at the Saginaw County Public Works Commissioners website

<https://www.saginawcounty.com/departments/public-works-drain-office/current-projects/>

In person at: LSG Engineers and Surveyors, 3135 Pine Tree Road, Suite D, Lansing, Michigan 48911.
Telephone (517) 393-2902. Bidding documents are available for a non-refundable payment of \$35.00.

Ground shipping with purchase is an additional \$20.00 per set. Priority overnight shipping with purchase is an additional \$25.00 per set. Fees are payable by cash or check.


Electronic copies of Bidding Documents may be obtained free of charge via ShareFile. Contact Alan Boyer (aboyer@peagroup.com) or Shannon Pugh (spugh@peagroup.com) for the access link.

The date for the Substantial Completion of such Contract is September 14, 2022, with Final Completion by October 14, 2022. It is anticipated that the Notice to Proceed will be issued on May 16, 2022.

A security deposit in the form of a cashier's check, money order, certified check or bidders bond shall be submitted with any bids. No cash will be permitted. The security deposits of all unsuccessful bidders shall be returned after the Contract is awarded.

The Contract will be awarded to the lowest responsive and responsible bidder giving adequate security for the performance of the work and meeting all conditions represented in the Instructions to Bidders. The Contract completion date and the terms of payment will be announced at the time and place of letting. If no satisfactory bids are received, we reserve the right to reject any and all bids and to adjourn to a time and location as we shall announce.

Dated: April 5, 2022



Brian J. Wendling
Saginaw County Public Works Commissioner
111 S. Michigan Ave., Saginaw, MI 48602

SECTION 00100

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders are defined in Section 00700 – General Conditions (Standard General Conditions of the Construction Contract, EJCDC, C-700, 2013 edition).

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Notice of Letting may be obtained from ENGINEER.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 OWNER and ENGINEER, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 Each Bidder must be prepared to submit, within 5 days of OWNER's request, written evidence of qualifications to perform the Work. The written evidence will include: financial data, previous experience, present commitments and other such data as may be requested by OWNER. Bidder must be prepared to show previous experience in constructing at least three projects of a similar type, comparable size and comparable complexity within the past five years. Each Bid must contain evidence of Bidder's qualification to do business in the State of Michigan or Bidder must covenant to obtain such qualification prior to award of the Contract.
- 3.02 In addition to the above, when so requested, Bidder shall meet with OWNER's representatives and give further information in order to determine Bidder's qualifications, responsibility, and ability to perform and complete the Work in accordance with the Contract Documents.
- 3.03 OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, Bidder fails to satisfy OWNER that the Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

ARTICLE 4 – EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 4.01 It is the responsibility of each Bidder before submitting a Bid:
- 4.01.1 To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents including technical data referred to below, if any;
- 4.01.2 To visit the Site to 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;
- 4.01.3 To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
- 4.01.4 To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and,

- 4.01.5 To promptly notify ENGINEER of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.
- 4.02 Refer to Section 00800 – Supplementary Conditions for information on reference materials, if any, which ENGINEER has used in preparing the Contract Documents and a determination of the “technical data” therein upon which Bidder may rely.
- 4.03 Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site are 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.
- 4.04 Provisions concerning responsibilities for the adequacy of data, if any, furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in Paragraphs 5.03 through 5.05 of Section 00700 – General Conditions.
- 4.05 Before submitting a Bid, each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of the Work and which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 4.06 On request, OWNER will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such examinations, investigations, explorations, tests and studies.
- 4.07 Reference is made in the Contract Documents and Section 01010 – Summary of Work, for the identification of the general nature of work, if any, that is to be performed at Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, the OWNER will provide to each Bidder for examination access to or copies of Contract Documents, if any, (other than portions thereof related to price) for such work.
- 4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated in or expressly required by the Contract Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by ENGINEER is acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.
- 4.09 The provisions of paragraphs 4.01 through 4.07, inclusive, of section 00100 – Instructions to Bidders do not apply to Asbestos, Polychlorinated biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Paragraph 5.06 of Section 00700 – General Conditions, unless they are shown or indicated in the Documents and Specifications or identified in the Contract Document.

ARTICLE 5 – AVAILABILITY OF LANDS FOR WORK, ETC.

- 5.01 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.
- 5.02 OWNER has acquired easements and access locations. CONTRACTOR will be limited to those areas and specifically limited to the limits of disturbance as shown on the plans. Copies of easement documents are available for review. CONTRACTOR must familiarize himself/herself with those easements and include the cost for complying with easement provisions in his Bid.
- 5.03 Work time limitations, coordination, field office and staging areas, and related matter are included in Section 01010 – Summary of Work.

ARTICLE 6 – INTERPRETATIONS AND ADDENDA

- 6.01 All questions about the meaning or intent of the Contract Documents are to be directed to ENGINEER. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda, which will be mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Only questions answered by formal written Addenda will be binding. Questions asked after **MONDAY, APRIL 11, 2022 at 1:00 pm** will not be answered, within the discretion of the OWNER. Oral and other interpretations or clarifications will be without legal effect.
- 6.02 Any conflicts, errors, ambiguities or discrepancies between the project plans and specifications as identified by the CONTRACTOR shall be brought to the immediate attention of the ENGINEER.
- 6.03 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 must be accompanied by Bid security made payable to OWNER in an amount of 5% of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (optional form attached) issued by a surety meeting the requirements of Article 6 of Section 00700 – General Conditions.
- 7.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Contract security within 7 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until a completed Contract has been issued, whereupon Bid security furnished by such Bidders will be returned.

ARTICLE 8 – CONTRACT TIMES

- 8.01 The numbers of days within which the Work is to be substantially completed and also completed and ready for final payment (the Contract Times) are set forth in the Bid Form and the Agreement.

ARTICLE 9 – LIQUIDATED DAMAGES

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

ARTICLE 10 – SUBSTITUTE/"OR EQUAL" ITEMS

- 10.01 The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute/"or equal" items.
- 10.02 Whenever materials and equipment are indicated in the Drawings or specified in the Specifications by using the name of one or more Suppliers, the bid shall be based on providing the materials or equipment of the Suppliers named.
- 10.03 Whenever it is indicated in the Drawings or specified in the Specifications that a substitute/"or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Paragraphs 7.04 and 7.05 of Section 00700 – General Conditions, which may be supplemented in Division 1 – General Requirements.

ARTICLE 11 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 11.01 If Section 00800 – Supplementary Conditions requires, or if OWNER requests, the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish principal items of material and equipment) to be submitted to OWNER prior to the Effective Date of the Agreement, the apparent Successful Bidder and any other Bidder so requested, shall within 7 days after the Bid opening submit to OWNER a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualifications for each such Subcontractor, Supplier, person or organization if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, either may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute in which case the apparent Successful Bidder shall submit an acceptable substitute, that Bidder's Bid price will be increased (decreased) by the difference in cost occasioned by such substitution and OWNER may consider such price adjustment in evaluating Bids and making the contract award. If apparent Successful Bidder declines to make any such substitutions, OWNER may award the contract to the next lowest bidder that proposed to use acceptable Subcontractors, Suppliers and other persons and organizations. Declining to make requested substitutions will not constitute grounds for forfeiting the Bid security of any Bidder. Any Subcontractor, Suppliers, or other person or organization listed and to whom OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the documents as provided in Paragraph 7.06 of Section 00700 – General Conditions.
- 11.02 CONTRACTOR shall not be required to employ any Subcontractor, supplier, other person or organization against whom CONTRACTOR has reasonable objection except as identified in those Procurement Contracts, if any, which will be assigned to the CONTRACTOR and identified in the Contract Documents.

ARTICLE 12 – BID FORM

- 12.01 The Bid Form is included with the Bidding Documents; additional copies may be obtained from ENGINEER.
- 12.02 All blanks on the Bid Form must be completed legibly in ink or by typewriter.

- 12.03 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed, if required by state law, and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be indicated below the signature.
- 12.04 Bids by joint ventures or partnerships must be executed in the partnership or joint venture name and signed by all partners, whose title must appear under the signature and the official address of the joint venture or partnership must be provided.
- 12.05 Bids by limited liability companies must be executed in the name of the limited liability company and signed by a member, if the limited liability company is member-managed or by the manager and a member, if the limited liability company is manager-managed.
- 12.06 All names must be typed or printed below the signature, and corporations, partnerships, joint ventures or limited liability companies must provide the registered address as on file with the Michigan Department of Licensing and Regulatory Affairs.
- 12.07 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- 12.08 The electronic mail address, mailing address and telephone number for communications regarding the Bid must be indicated.
- 12.09 Evidence of authority to conduct business as an out-of-state corporation in State of Michigan shall be provided in accordance with Paragraph 3 above. State contractor license number, if any, must also be shown.
- 12.10 The bid price shall include such amounts as the Bidder deems proper for overhead and profit. It is understood that any cash allowances named in the Contract Documents account for the cost of materials and equipment delivered at the Site as provided in Article 13 of Section 00700 – General Conditions.

ARTICLE 13 – SUBMISSION OF BIDS

- 13.01 Bids shall be submitted at the time and place indicated in the Notice of Letting and Advertisement of Bids, and shall be enclosed in an opaque sealed envelope, marked with the Project title and name and address of the Bidder and accompanied by the Bid security and all required documentation. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. No Bids will be accepted via facsimile or electronic mail.
- 13.02 Each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy of each of the Bid Form and the Bid Bond. The unbound copy of the Bid Form is to be completed and submitted.

ARTICLE 14 – MODIFICATION AND WITHDRAWAL OF BIDS

- 14.01 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- 14.02 If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work. No withdrawal of a Bid shall be permitted on account of mistake or any other reason after the expiration of 24 hour period.

ARTICLE 15 – OPENING OF BIDS

- 15.01 Bids will be opened and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the Bids and alternatives will be made available to Bidders after the opening of Bids.

ARTICLE 16 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 16.01 All Bids will remain subject to acceptance for 60 days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

ARTICLE 17 – AWARD OF CONTRACT

- 17.01 OWNER reserves the right to reject any and all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 17.02 In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.03 OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for the Work. OWNER also may consider the operating costs, maintenance considerations, performance data and guarantees of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 17.04 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 do the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.
- 17.05 If the contract is to be awarded, it will be awarded on the basis of the Total Amount to the lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

ARTICLE 18 – CONTRACT SECURITY AND INSURANCE

- 18.01 Article 6 of Section 00700 – General Conditions and Section 00800 – Supplementary Conditions sets forth OWNER's requirements as to insurance. When Successful Bidder delivers the executed Agreement to OWNER, it shall be accompanied by the required certificates of insurance (and other evidence of insurance requested by OWNER).
- 18.02 Paragraph 6.01 of Section 00700 – General Conditions and Section 00800 – Supplementary Conditions sets forth OWNER's requirements as to Performance and Payment Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it shall be accompanied by the required Performance and Payment Bonds.

ARTICLE 19 – SIGNING OF AGREEMENT

- 19.01 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 7 days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement to OWNER with the required Bonds and certificates of insurance. Within 10 days thereafter, OWNER will deliver one fully signed counterpart to CONTRACTOR.

ARTICLE 20 - PRE-BID CONFERENCE

- 20.01 A pre-bid conference will NOT be held for this project.

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For Bid Purposes Only

SECTION 00314

BID FORM

- A. PROJECT NAME: **Babcock Drain**
- B. PROJECT LOCATION: **Maple Grove Township, Saginaw County, Michigan**
- C. BID IS SUBMITTED TO: Brian J. Wendling, Saginaw County Public Works Commissioner
on behalf of **Babcock Drain Drainage District**, 111 S. Michigan
Ave., Saginaw, MI 48602

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents and within the Contract Time indicated in the Contract Documents for the Contract Price and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Notice of Letting and Instructions to Bidders, including without limitation, those dealing with the disposition of Bid security. BIDDER will sign and submit the Agreement and the Bonds and other documents required by the Bidding Documents within 7 days after the date of OWNER's Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

- a. BIDDER has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

(BIDDER NOTE: Bidder shall fill in date and number of all addenda. If no addenda have been issued, insert "n/a".)

Date of Issue

Addendum No.

_____	_____
_____	_____
_____	_____

- b. BIDDER has visited the site and conducted an examination of the area 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;
- c. 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;
- d. BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) if identified in Section 00800 – Supplementary Conditions as provided in Article 5 of Section 00700 – General Conditions. BIDDER accepts the determination set forth in Section 00800 - Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which BIDDER is entitled to rely as provided in Article 5 of Section 00700 – General Conditions. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to

Underground Facilities at or contiguous to the Site;

- e. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all 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 Contract Documents;
 - f. 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 the Bid is submitted as indicated in the Contract Documents;
 - g. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents and all additional or supplementary examinations, investigations, explorations, tests, studies and data with the Contract Documents;
 - h. BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted;
 - i. 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;
 - j. Bidder acknowledges, represents and warrants that it meets the qualifications of a Bidder pursuant to the Instructions to Bidder for this Project and has complied with all Articles, terms conditions and requirements provided in Section 00100;
4. BIDDER will complete the Work in accordance with the Contract Documents for the following prices(s):

**EXHIBIT A – BID FORM
BABCOCK DRAIN**

Item	Description	Qty	Unit	Unit Cost	Total
1	Maintaining traffic	1	Ls	\$	\$
2	Roadside ditch re-shaping	918	Ft	\$	\$
3	Open channel excavation	1,268	Ft	\$	\$
4	Spoil leveling	2,046	Ft	\$	\$
5	Spoil hauling	1,500	Ft	\$	\$
6a	Remove existing 18" CSP culvert	34	Ft	\$	\$
6b	Furnish and install 57" span x 38" rise CSPA culvert	40	Ft	\$	\$
7a	Remove existing 18" CSP culvert	170	Ft	\$	\$
7b	Furnish and install 57" span x 38" rise CSPA culvert	310	Ft	\$	\$
8a	Remove existing 12" CSP culvert	36	Ft	\$	\$
8b	Furnish and install 36" CSP culvert	40	Ft	\$	\$
9	Riprap, MDOT plain	209.6	Sy	\$	\$
10	Cross vane	4	Ea	\$	\$
11	Remove and replace gravel drive	95	Sy	\$	\$
12	Remove and replace concrete drive	20	Sy	\$	\$
13	Tree removal and disposal	1	Ls	\$	\$
14	Seeding and topsoil	0.6	Ac	\$	\$
15	Seeding	2.2	Ac	\$	\$
16	Mulch blankets (non-specific location)	100	Sy	\$	\$
17	Soil erosion and sedimentation control	1	Ls	\$	\$
18	Cleanup and restoration	1	Ls	\$	\$
Total Bid Amount					\$

BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents. BIDDER acknowledges that progress payments will be based on the Payment Schedule as detailed in the Contract.

5. BIDDER agrees that the Work will be substantially complete on or before **SEPTEMBER 14, 2022** and completed and ready for final payment in accordance with paragraph 15.06 of Section 00700 – General Conditions on or before **OCTOBER 14, 2022**.

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

6. In addition, BIDDER accepts:
 - a. That the OWNER will provide through the ENGINEER reference points and laying out (staking) of the work sufficient for construction purposes in accordance with applicable parts of paragraph 4.03 of the General Conditions and the Supplementary Conditions.
 - b. That all inspection observation on this project will be performed by the ENGINEER. The inspector is required to observe: excavation of grade; laying of pipe and appurtenances; backfilling; compaction; location and installation of services; installation of manholes, catch basins, meter pits, pump stations, and junction chambers; roadway construction; forming and pouring of concrete items; boring and jacking pits; line and grade of casing pipes; stripping and cleanup; and, restoration, etc. The inspector's limitations of authority and responsibilities are generally described in paragraph 10.08 of the General Conditions.
7. The following documents are attached to and made a condition of this Bid:
 - a. Required 5% Bid Security in the form of Bid Bond or Certified Check.
 - b. A tabulation of Subcontractors, suppliers and other persons or organizations whose separate/individual work value exceeds 15%.
 - c. If required, BIDDER's Qualification Statement with supporting data.

8. Communications concerning this Bid shall be addressed to the ENGINEER:

LSG Engineers & Surveyors, Inc.
3135 Pine Tree Road, Suite D
Lansing, MI 48911

T: (517) 393-2902

Contact persons for this project are:

Alan Boyer (x. 225) – aboyer@lsg-es.com

9. Terms used in this Bid have meanings assigned to them in Section 00700 – General Conditions of The Construction Contract.

10. This Bid submitted by:

Bidder: _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

By: _____

(Authorized Officer's Name)

Its: _____

(Officer's Title)

Submittal Date: _____

Business Address: _____

Telephone No. _____

FAX No. _____

e-mail address: _____

Federal ID No. _____

Saginaw County

Vendor ID No. _____

CONTRACTOR'S STATEMENT OF RELEVANT EXPERIENCE

List contracts completed or awarded within the last five (5) years that are of similar nature or complexity to the proposed **BABCOCK DRAIN**. Include a brief description of the work; the name of the owner; the location of the project; the dollar value of your contract or subcontract; and, whether you were the prime contractor or subcontractor. Make additional copies of this page as needed.

Year	Description of Work	Name of Owner and Project #	Location	Contract Amount	Prime or Sub

END OF SECTION

SECTION 00315

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

as PRINCIPAL, and

as SURETY, are hereby held and firmly bound unto the Saginaw County Public Works as OWNER in the penal sum of

_____ (\$ _____) or five percent (5%) of the total bid amount, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that WHEREAS the Principal has submitted to the Saginaw County Public Works Commissioner a certain BID attached hereto and hereby made a part hereof, to enter into a contract in writing for the **BABCOCK DRAIN**, now THEREFORE:

- (a) IF said BID shall be rejected; or,
- (b) IF said BID shall be accepted and the PRINCIPAL shall execute and deliver a contract in the Form of Contract attached hereto and properly completed in accordance with said BID, and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor, or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID;

THEN this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

Principal

Surety

Print or type name signed above

Print or type name signed above

Title

Title

IMPORTANT – Surety companies executing BONDS must appear on the Treasury Department’s most current list (Circular 570 as amended) and authorized to transact business in the State of Michigan.

END OF SECTION

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For Bid Purposes Only

SECTION 00500

AGREEMENT

This AGREEMENT is dated as of the _____ day of _____ in the year 2022 by and between Saginaw County Public Works Commissioner, on behalf of the Babcock Drain Drainage District, hereinafter called OWNER, and _____, hereinafter called CONTRACTOR. OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – WORK

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

Clearing, re-shaping of existing roadside ditch, culvert removal and replacement, driveway removal and replacement, riprap placement, open channel excavation, and restoration within Maple Grove Township, Saginaw County, Michigan.

ARTICLE 2 – ENGINEER

- 2.01 The Project has been designed by LSG Engineers & Surveyors, 3135 Pinetree Road, Suite D, Lansing, Michigan, who is hereinafter called ENGINEER and who will act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents. However, ENGINEER's independent review, inspection and/or contract administration and management shall not relieve the CONTRACTOR of any of its duties under the contract. OWNER's representatives, employees, and any and all independent professionals retained separately by the OWNER and not identified as the ENGINEER above shall not relieve the CONTRACTOR of any liability due to their inspection, review, measurements, or analysis of the Work.

ARTICLE 3 – CONTRACT TIMES

- 3.01 The Work will be substantially complete by **SEPTEMBER 14, 2022**. All the work will be complete and ready for final payment by **OCTOBER 14, 2022**.
- 3.02 Liquidated Damages: OWNER and CONTRACTOR recognize that time is of the essence for this Agreement, and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.01 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. In addition to the liquidated damages, the CONTRACTOR shall pay the OWNER, its actual costs and expenses due to the delay including but not limited to actual attorney fees, inspection fees, engineering fees, testing, expert and consultant fees and traffic control expenses incurred due to the delay. If by the law the OWNER cannot recover both liquidated and actual costs and attorney fees, then CONTRACTOR shall pay actual costs and attorney fees incurred as a result of the delay. OWNER and CONTRACTOR also recognize the delays, expense and difficulties involved in proving in a legal or arbitration preceding 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 in addition to the actual costs and expenses incurred by the OWNER as additional liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **Five Hundred Dollars (\$500.00)** for each day that expires after the time specified in paragraph 3.01 for Substantial Completion until the Work is substantially complete. After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining

work within the Contract Time, CONTRACTOR shall pay OWNER **Five Hundred Dollars (\$500.00)** for each day that expires after the time specified in paragraph 3.01 for completion and readiness for final payment.

ARTICLE 4 – CONTRACT PRICE

- 4.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to below:
- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work identified in the BID FORM times the measured quantity of that item.
 - B. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed. Determinations of actual quantities and classifications are to be made by ENGINEER as provided in Paragraph 13.03 of the General Conditions.

ARTICLE 5 – PAYMENT PROCEDURES

- 5.01 CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of Section 00700 – General Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

5.02 Progress Payments and Retainage

- A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment on or about the **15th** day of each month during performance of the Work as provided in Paragraphs 5.02.A.1 and 5.02.A.2 below. All such payments will be measured by the schedule of values established as provided in the General Conditions:
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, including but not limited to liquidated damages, in accordance with Paragraph 15.01 of the General Conditions:
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
 - 2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95 percent of the Work completed, less such amounts as ENGINEER shall determine in accordance with Paragraph 15.01.C.5 of the General Conditions.

5.03 Final Payment

- A. As provided in Paragraph 15.06 of Section 00700 – General Conditions: upon receipt of the final Application for Payment accompanied by ENGINEER's recommendation of payment, OWNER shall pay CONTRACTOR the remainder of the Contract Price as recommended by ENGINEER

less any sum OWNER is entitled to set off against ENGINEER's recommendation (including but not limited to liquidated damages).

ARTICLE 6 – INTEREST

- 6.01 All moneys not paid when due as provided in Article 15 of Section 00700 – General Conditions shall bear interest at the rate of 0% per month.

ARTICLE 7 – CONTRACTOR'S REPRESENTATIONS

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

- 7.01 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8) and other related data identified in the Bidding Documents including "technical data".
- 7.02 CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- 7.03 CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work, including the soil erosion and sedimentation control measures that are or may be required as part of this project.
- 7.04 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) if identified in Section 00800 – Supplementary Conditions as provided in Article 5 of Section 00700 – General Conditions. CONTRACTOR accepts the determination set forth in Section 00800 - Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in Article 5 of Section 00700 – 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.
- 7.05 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 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.
- 7.06 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.
- 7.07 CONTRACTOR has correlated the information known to the 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.

- 7.08 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 the 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.
- 7.09 Bidder acknowledges, represents and warrants that it meets the qualifications of a Bidder pursuant to the Instructions to Bidder for this Project and has complied with all Articles, terms, conditions and requirements provided in Section 00100, including but not limited to compliance with the applicable prevailing wage requirements and non-discrimination policies.

ARTICLE 8 – CONTRACT DOCUMENTS

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

- 8.01 CONTRACTOR's Bid dated _____.
- 8.02 **Addenda __ to __ inclusive.**
- 8.03 This Agreement.
- 8.04 Construction Performance Bond.
- 8.05 Construction Payment Bond.
- 8.06 General Conditions.
- 8.07 Supplementary Conditions.
- 8.08 Notice of Award.
- 8.09 Notice to Proceed.
- 8.10 Project Manual bearing the title: **Project Manual for BABCOCK DRAIN, Maple Grove Township, Saginaw County, Michigan.**
- 8.11 Drawings, consisting of sheets as listed on the cover sheet with each sheet bearing the following general title: **BABCOCK DRAIN**
- 8.12 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto:
- a. Written Amendments.
 - b. Change Orders

There are no Contract Documents other than those listed above in Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Article 11 of Section 00700 – General Conditions.

ARTICLE 9 – MISCELLANEOUS

- 9.01 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in Section 00700 – General Conditions.

- 9.02 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.
- 9.03 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representative to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.
- 9.04 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.
- 9.05 At OWNER's request, CONTRACTOR will attend a site walk with OWNER and/or ENGINEER to review the regulatory requirements, standards, procedures, methods, etc. applicable to the Work and in accordance with applicable local, state and federal laws. This includes the soil erosion and sedimentation control measures that are or may be required as part of this project.
- 9.06 CONTRACTOR shall make its records and staff available if OWNER receives State of Michigan audit request at no cost.
- 9.07 CONTRACTOR personnel working on OWNER's projects must maintain the required State and/or Federal Certifications, if applicable. The OWNER shall have the right to reject identified CONTRACTOR personnel from working on any project for the OWNER.
- 9.08 Non-Waiver: Waiver by either party of any default or breach of any provision of this Agreement by the other party shall not be construed as a waiver of any subsequent default or breach.
- 9.09 Default: In the event of a default and legal actions are necessary to enforce the terms of this agreement, the prevailing party shall be entitled to collect from any judgment or settlement sums due, plus actual attorneys' fees, court costs and other expenses incurred by the party in connection therewith, including but not limited to expert, engineering and consulting fees incurred by the prevailing party.
- 9.10 Indemnification: The CONTRACTOR shall, at its own expense, protect, defend, indemnify and hold harmless the OWNER, its elected and appointed officers, employees, servants and agents from all claims, damages, costs, lawsuits and expenses including, but not limited to, costs from administrative proceedings, court costs, and actual attorney fees that they may incur as a result of any acts, omissions, unauthorized changes or negligence of the CONTRACTOR, its subcontractor, sub-subcontractor, or any of their officers, employees, servants or agents which may arise out of this agreement.
- 9.11 Independent Review: The independent review and inspection by OWNER, OWNER's employees, agents, representatives or professionals shall not be a release or novation of any duties or responsibilities of the CONTRACTOR.

9.13 Entire Agreement: This Agreement constitutes the entire Agreement between the parties, supersedes all previous agreements, written or oral, and there are no understandings or representations of any kind, express, implied or otherwise, not expressly set forth herein. This Agreement may not be modified, altered, or amended except as set forth in writing signed by both parties

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER.

CONTRACTOR:

By: _____

Name of CONTRACTOR

Signature

Name and Title of Signatory

Witness: _____

Witness: _____

Signed on: _____

Date

Street

City, State and Zip

Telephone Number

OWNER:

SAGINAW COUNTY PUBLIC WORKS
COMMISSIONER,
On behalf of the Babcock Drain Drainage District

Signature

Brian J. Wendling, Saginaw County Public Works
Commissioner

Name and Title of Signatory

Witness: _____

Witness: _____

Signed on: _____

Date

111 S. Michigan Ave

Street

Saginaw, MI 48602

City, State and Zip

(989) 790-5258

Telephone Number

END OF SECTION

SECTION 00520

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

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

(Name of Surety)

Hereinafter called SURETY, are held and firmly bound unto

BABCOCK DRAIN DRAINAGE DISTRICT
C/O Brian J. Wendling, Saginaw County Public Works Commissioner
111 S. Michigan, Saginaw, MI 48602

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 2021, a copy of which is hereto attached and made a part hereof for the construction of the **BABCOCK DRAIN**.

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

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

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the Contract or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in three counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2021.

ATTEST:

(Principal) Secretary

SEAL

Witness as to Principal

(Address)

ATTEST:

Witness as to Surety

(Address)

Principal

By _____

(Address)

Surety

By _____

Attorney - in - Fact

(Address)

NOTE: The date of the BOND must not be prior to the date of the Contract.
If the CONTRACTOR is partnership, all partners should execute the BOND.

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

END OF SECTION

SECTION 00530

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

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

(Name of Surety)

Hereinafter called SURETY, are held and firmly bound unto

BABOCK DRAIN DRAINAGE DISTRICT
C/O Brian J. Wendling, Saginaw County Public Works Commissioner
111 S. Michigan, Saginaw, MI 48602

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 2021, a copy of which is hereto attached and made a part hereof for the construction of the **BABCOCK DRAIN**.

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract and any authorized extensions or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

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

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL, shall have given written notice to any two of the following: The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) day after such claimant did or performed the last of the WORK or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope

addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of Michigan, save that such service need not be made by a public officer. (b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, is being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract or the loan documents shall include any alteration, addition, extension or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this _____ day of _____, 2021.

ATTEST:

(Principal) Secretary

Principal

SEAL

By _____

(Address)

Witness as to Principal

(Address)

Surety

ATTEST:

Witness as to Surety

(Address)

By _____

Attorney - in - Fact

(Address)

NOTE: The date of the BOND must not be prior to the date of the Contract.
If the CONTRACTOR is partnership, all partners should execute the BOND.

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

END OF SECTION

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



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National Society of Professional Engineers
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
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For Bid Purposes Only

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The 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. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *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.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *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.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *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.
40. *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.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *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 a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *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 but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs 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 Article 10 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 15.03 or 15.04).
- 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. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. 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. *Bonds*: 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 Contractor's Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner's Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *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 2.03.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 the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, 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 part of the Contract Documents prepared by or for Engineer. 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. 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.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. 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. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *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.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris 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 and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; 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.

5.04 *Differing Subsurface or Physical Conditions*

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent 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 do not warrant or guarantee 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 information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. 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; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. 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 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then 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 bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. 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.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against 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. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

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

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; 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 (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that 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.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, 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.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable 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 Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 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; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; 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. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. 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 or Contractor as trustee or fiduciary, 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 occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.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, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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.
- 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.

7.02 *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, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work 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.

7.04 "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 Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that 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, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - 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.
 - B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
 - C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be 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.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. 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.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. 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 money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *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.

7.08 *Permits*

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

7.09 *Taxes*

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

7.10 *Laws and Regulations*

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

7.11 *Record Documents*

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

7.12 *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, other work in progress, 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 Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.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 at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection 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 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *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.

7.14 *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.

7.15 *Emergencies*

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

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the 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 and equipment 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 of that submittal, and that Contractor approves the 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 set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- 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 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

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 or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample 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 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

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

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on 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;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

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

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from 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 7.18.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 7.18.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.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- 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, 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, 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 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. 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.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. 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, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

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

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.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 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost 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 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. 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;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

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

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work 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 13.01.C, 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, and 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 13.01.
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 6.05), 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 communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. 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 Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole 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, Change Proposal, Claim, set-off, or other 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 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, 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.

13.02 Allowances

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

- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: 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.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price 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;
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

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

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, 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, then 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 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. 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, a warehouse bond, 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.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, 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 money 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. Engineer's Review of 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 have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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 15.07. 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. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the 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 Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 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 to 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. 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 repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- 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, 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 are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

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

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 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 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 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 are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract EJCDC® C-700, 2013 Edition (see Section 00700 – General Conditions). Provisions that are not so amended and supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions.

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.

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SC-2.01 Delete Paragraph 2.01.D in its entirety and insert the following in its place:

Evidence of Owner’s Insurance: When the Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of Owner’s liability insurance required to be purchased and maintained by the Contractor under Article 6.

SC-2.02 Amend the first sentence of Paragraph 2.02.A to read as follows:

Owner shall furnish to Contractor four copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

SC-4.05 Add the following text at the end of 4.05.B:

Delays attributable to a stop work order issued by the Owner pursuant to Paragraph 14.06, or by any Department or Agency having jurisdiction such as that related to permit compliance, are within the Contractor's control.

SC-6.01 Add the following text at the end of paragraph 6.01C:

Said surety companies shall be classified as having financial ratings not lower than those shown below:

A.M. Best:

- | | | |
|-----|----------------------------|---------|
| (1) | Financial Strength Rating: | A+ |
| (2) | Financial Size Category: | Class V |

Standard and Poor's:

- | | | |
|-----|----------------------------|----|
| (1) | Financial Strength Rating: | AA |
|-----|----------------------------|----|

SC-6.02 Amend the last sentence of paragraph 6.02.B to read as follows:

All companies that provide insurance policies required under this Contract shall be classified as having financial ratings not lower than those shown below:

A.M. Best:

- | | | |
|-----|----------------------------|---------|
| (1) | Financial Strength Rating: | A+ |
| (2) | Financial Size Category: | Class V |

Standard and Poor's:

- | | | |
|-----|----------------------------|----|
| (1) | Financial Strength Rating: | AA |
|-----|----------------------------|----|

SC-6.02 Delete Paragraph 6.02.D in its entirety.

SC-6.03 Insert "and Engineer's Consultants," after "Owner and Engineer" in the third line of Paragraph 6.03.G.

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>
Employer's Liability:	
Bodily injury, each accident	\$ <u>1,000,000</u>
Bodily injury by disease, each employee	\$ <u>1,000,000</u>
Bodily injury/disease aggregate	\$ <u>1,000,000</u>

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	\$ <u>2,000,000</u>
Products - Completed Operations Aggregate	\$ <u>2,000,000</u>
Personal and Advertising Injury	\$ <u>1,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
Each accident	\$ <u>2,000,000</u>

Property Damage:

Each accident	\$ <u>1,000,000</u>
---------------	---------------------

Or,

Combined Single Limit of	\$ <u>2,000,000</u>
--------------------------	---------------------

MCS 90 Endorsement on Vehicle Insurance	<u>Statutory</u>
---	------------------

4. Excess or Umbrella Liability:

Per Occurrence	\$ <u>2,000,000</u>
General Aggregate	\$ <u>2,000,000</u>

5. Contractor's Pollution Liability:

Each Occurrence	\$ <u>1,000,000</u>
General Aggregate	\$ <u>2,000,000</u>



If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:

State of Michigan
Saginaw County
Babcock Drain Drainage District
Saginaw County Road Commission
Maple Grove Township

7. Contractor's Professional Liability:

Each Claim	\$ 1,000,000
Annual Aggregate	\$ 2,000,000

SC-6.04 Delete Paragraph 6.04.A in its entirety and replace it with the following text:

In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Contractor shall purchase and maintain OWNER'S and Contractor's Protective Liability Insurance which shall:

- a. Be a separate policy to protect OWNER, ENGINEER, their consultants, agents, employees, and such public corporations in whose jurisdiction the Work is located for their liability for work performed by Contractor or Subcontractors under this contract.
- b. Name OWNER as the insured.
- c. Include any specific insurance language requirements for the following named insured.
- d. Name the following as additional insured which will be held harmless and indemnified:

State of Michigan
Saginaw County
Babcock Drain Drainage District
Saginaw County Road Commission
Maple Grove Township
LSG Engineers & Surveyors, Inc.

Separate:

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

In lieu of the Owner's and Contractor's Protective Liability, the Contractor may provide an endorsement to their policy for a per project aggregate coverage with the following limits:

Aggregate Limit	\$1,000,000
Each Occurrence Limit	\$1,000,000
(ISO form CG2503 or its equivalent)	

A copy of this endorsement must accompany the Certificate of Insurance, the Certificate will clearly state the additional insured requirement and the policy contains the per project aggregate endorsement.

SC-6.05 Delete the first sentence in Paragraph 6.05.A.1 and replace it with the following text:

Include the Owner, Contractor, and LSG Engineers & Surveyors, Inc. as named insureds, and all Subcontractors as insureds or named insureds under such builder's risk policy.

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

- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and

approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
4. Liaison:
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
5. 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.
6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's 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 RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in 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 that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

10. Records:

- a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
- b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- c. Maintain records for use in preparing Project documentation.

11. Reports:

- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
- b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. 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.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

- a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

SC-11.06 Delete Paragraphs 11.06.A.2 and 11.06.A.3 in their entirety and insert in their place the following:

2. *Engineer's Action:* Engineer will review each Change Proposal and within 15 days after receipt of the Contractor's supporting data, either indicate in writing a recommendation of approval and present the Change Proposal to the Owner, or return the Change Proposal to Contractor indicating in writing Engineer's reasons for refusing to recommend the sought after change.
3. *Owner's Action:* 15 days after receipt of Engineer's recommendation to approve a Change Proposal, Owner shall approve or deny the request in writing (with a copy to Engineer).
4. *Binding Decision:* A Change Order will not be binding or enforceable unless authorized by Owner in writing. Contractor acknowledges that it may not submit application for payment or receive payment for changes to the Work that are not authorized by Owner in writing by a Change Order.

SC-14.06 Add the following language at the end of Paragraph 14.06.A:

As an Authorized Public Agency under Part 91 (MCL 324.9110), the Owner may also order the Contractor to stop work if the Work does not conform to the Contract Documents as they relate to soil erosion and sedimentation control.

SC-15.01 Revise Paragraph 15.01.D.1 to read as follows:

Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation and Owner's acceptance of the application, the amount recommended will (subject to the provisions of Paragraph 15.01.E) become due, and when due will be paid by Owner to Contractor.

SC-15.06 Amend Paragraph 15.06.D.1 to reads as follows:

Thirty days after the presentation to Owner of the Final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) and accepted by the Owner, will become due and shall be paid by Owner to Contractor.

END OF SECTION

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For Bid Purposes Only

SECTION 00952

NOTICE OF AWARD

TO: _____

(Successful Bidder)

DATE: _____, 20____

ADDRESS: _____

CONTRACT FOR: **BABCOCK DRAIN.**

You are notified that your Bid dated _____, 2022 for the above Contract has been considered.

You are the apparent Successful Bidder and have been awarded a contract for the BABCOCK DRAIN project.

The contract price of your contract is _____ Dollars (\$_____).

Three copies of the proposed Project Manual accompany this Notice of Award.

You must comply with the following conditions precedent within 7 days of the date of this Notice of Award, that is by _____, 2022.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement included in the Project Manual. Each of the Agreements must bear your signature at the designated location.
2. You must deliver with the executed Agreement the contract Security (Bonds) as specified in the Instructions to Bidders (Article 18) and Section 00700 – General Conditions (Article 6) and Section 00800 – Supplementary Conditions (Article 6).
3. You must also deliver with the executed Agreement the insurance documents specified in Article 6 of Section 00700 – General Conditions and Article 6 of Section 00800 – Supplementary Conditions.
4. (List other conditions precedent).

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

Within 10 days after you comply with those conditions, OWNER will return to you one fully signed counterpart of the Agreement included in the Project Manual.

SAGINAW COUNTY PUBLIC WORKS COMMISSIONER,
on behalf of the Babcock Drain Drainage District

By: _____
(Authorized Signature)

Brian J. Wendling, Public Works Commissioner
(Name and Title)

ACCEPTANCE OF NOTICE OF AWARD

By: _____
(Contractor)*

(Signature)*

* Typed or Printed in ink.

(Name and Title of Signatory)*

Copy to ENGINEER

(Date)*

END OF SECTION

SECTION 00954

NOTICE TO PROCEED

TO: _____
(Successful Bidder)

DATE: _____, 2022

ADDRESS: _____

CONTRACT FOR: **BABCOCK DRAIN.**

You are hereby notified that Contract Time for the above contract will commence on _____, 2022.

By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement:

- 1) The date of Substantial Completion is **MMDD, 2022**; and,
- 2) The date of Final Completion is **MMDD, 2022**.

Before you may start any work at the Site, you must,

(List Requirements)

SAGINAW COUNTY PUBLIC WORKS COMMISSIONER,
on behalf of the Babcock Drain Drainage District

By: _____
(Authorized Signature)

Brian J. Wendling, Public Works Commissioner
(Name and Title)

ACCEPTANCE OF NOTICE TO PROCEED

By: _____
(Contractor)*

(Signature)*

(Name and Title of Signatory)*

(Date)*

* Typed or Printed in ink.

Copy to ENGINEER

END OF SECTION

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For Bid Purposes Only

DIVISION 1

GENERAL REQUIREMENTS

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For Bid Purposes Only

SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

1.01 Work Covered by Contract Documents:

- A. The Work covered by the Contract Documents comprises construction of the BABCOCK DRAIN located at in the Maple Grove Township, Saginaw County, Michigan. The Work includes, but is not limited to:

Construction of an open drain in Maple Grove Township, Saginaw County, Michigan. Work also includes clearing, re-shaping of existing roadside ditch, culvert removal and replacement, driveway removal and replacement, riprap placement, open channel excavation, and restoration.

1.02 Type of Contract:

- A. One contract will be let for the total project.

1.03 General:

A. Imperative language:

- 1. These specifications (Divisions 1 through 2) are written in the imperative mood and streamlined form. This imperative language is directed to the CONTRACTOR, unless specifically noted otherwise. Incomplete sentences shall be completed by inserting “shall”, “shall be” and similar mandatory phrases by inference in the same manner as they are applied to notes on Drawings. The words “shall”, “shall be” and similar mandatory phrases shall be supplied by inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated in the imperative or otherwise.

B. Related Sections:

- 1. Some Sections of these Specifications (Division 1 through 2) may include a paragraph titled “Related Sections”. This paragraph is an aid to the Project Manual user and may not include all related Sections. It is the CONTRACTOR’s obligation to coordinate all Sections whether indicated under “Related Sections” or not.

C. Reference to Section 00700 – General Conditions:

- 1. In Divisions 1 through 2, a reference to Section 00700 – General Conditions, includes by inference all amendments or supplements in Section 00800 – Supplementary Conditions.

1.04 CONTRACTOR Use of Premises:

- A. Limit use of premises to existing easements and/or right-of-ways.
- B. Limit construction traffic access to existing easements and/or rights-of-way.
- C. Coordinate use of premises under direction of OWNER and individual landowners.
- D. Except in connection with the safety or protection of persons or the Work or property at the Site or adjacent thereto, all Work at the Site shall be restricted to the following hours.
 - 1. Seven (7) a.m. to seven p.m. (7), Monday through Friday (except legal holidays).
 - 2. Saturday, Sunday or legal holidays with written approval of OWNER.
- E. CONTRACTOR shall limit storage of materials, machinery, and equipment and equipment trailers to those areas designated by the OWNER and landowner. CONTRACTOR shall be responsible to return storage areas to previous condition upon completion of project.

1.05 Occupancy Requirements:

- A. Landowner occupancy during construction:
 - 1. The landowner will occupy or utilize the premises during construction.
 - 2. Access to abutting properties shall be provided at all times.
 - 3. Access for emergency vehicles:
 - a. Provide at all times.
 - b. Provide at least one clear lane during non-work periods.
 - 4. Fire hydrants: Provide access to at all times.
 - 5. Do not block fire access routes.
 - 6. Detours and street closure: When provided for in the Contract Documents or approved by ENGINEER.
 - 7. Limit parking for construction vehicles to an area designated by OWNER and landowner.

1.06 Work Sequence:

- A. Coordinate construction schedule and operations with OWNER and ENGINEER.
- B. Sequence submittal:
 - 1. Submit a proposed sequence with appropriate times of starting and completion of tasks to ENGINEER for review.

PART 2 – PRODUCTS

2.01 Other Materials:

- A. General:
 - 1. All other materials, which are not specified herein and are not indicated on the Drawings, but are required for proper and complete performance of the work.
- B. Procedure:
 - 1. Select new, first quality materials.
 - 2. Obtain ENGINEER's review.
 - 3. Provide and install.

PART 3 – EXECUTION

Not used

END OF SECTION

SECTION 01012

STAKING AND INSPECTION SERVICES

PART 1 – GENERAL

1.01 Summary:

A. Section includes:

1. This section includes, but is not necessarily limited to, staking and inspection services to be provided by the ENGINEER and others as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the work.

B. Related sections:

1. Documents affecting the work of this Section include, but are not necessarily limited to, the General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

1.02 Project Layout:

A. Responsibilities:

1. The ENGINEER will provide horizontal and vertical layout as a part of the project.

B. Alignment and Construction Stakes

1. The centerline, or survey line, will be laid out by the ENGINEER. The ENGINEER will provide cut sheets describing the cut/fill, method of alignment and stakeout and benchmarks. In open drains, all angles shall be turned with circular curves commencing and ending at least fifty (50) feet on each side of the angle, unless otherwise specified on the plans. No changes shall be made without the written permission from the OWNER or the ENGINEER.
2. The ENGINEER will set suitable stakes and benchmarks showing the location and elevations of the various parts of the work. No work shall be undertaken until such stakes and benchmarks have been set by the ENGINEER. The CONTRACTOR shall assume full responsibility for detail dimensions and elevations measured from the lines, grades and elevations so established. The CONTRACTOR shall take due and proper precautions for the preservation of these stakes and benchmarks, and shall see to it that the work at all time proceeds in accordance therewith.
3. The CONTRACTOR shall provide the ENGINEER with 48 hours advance notice for all construction staking required.
4. Any restaking necessary whether due to vandalism, construction operations or any other cause will be done by the ENGINEER at the expense of the CONTRACTOR.

1.03 Construction Inspection:

A. By LSG Engineers & Surveyors.

1. Visits to the Site: In accordance with Section 00700 – General Conditions.
2. Expense: Paid by OWNER.

B. By OWNER Periodic site visits:

1. Expense: Paid by OWNER.

C. Inspection

1. The OWNER and his representatives shall at all times have access to all parts of the work whenever it is in preparation or progress and the CONTRACTOR shall provide facilities for such access and for inspection.

2. If the Contract Specifications or other Contract Documents, the ENGINEER's instructions, laws, ordinances, or any public authority requires any work to be specifically tested or approved, the CONTRACTOR shall give the OWNER 72 hours advance notice of its readiness for inspection.
3. If any work shall be covered up without approval or consent of the OWNER, it must, if required by the OWNER, be uncovered for examination and properly restored at the CONTRACTOR'S expense.
4. Re-examination of any work may be ordered by the OWNER, and if so ordered, the work must be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the OWNER will pay the cost of the re-examination and replacement. If such work is not in accordance with the Contract Documents, the CONTRACTOR shall pay such cost.
5. Properly authorized and accredited inspectors shall be considered to be the representatives of the OWNER, limited to duties and power entrusted to them. It will be their duty to inspect materials and workmanship of those portions of the work to which they are assigned, either individually or collectively under instructions of the ENGINEER or OWNER, and to report any and all deviations from the Contract Drawings, Contract Specifications, and other Contract provisions which may come to their notice. Any inspector shall have the right to order the work which he is assigned stopped, if in their judgment such action is necessary to (a) allow proper inspection, (b) to avoid irreparable damage to the work, or (c) avoid subsequent condemnation of work which could not be readily replaced or restored to an acceptable condition. Such stoppage shall be for a period reasonably necessary for notification of the ENGINEER and for the ENGINEER to determine that the work may proceed in due fulfillment of the Contract requirements. If necessary, the OWNER may suspend all or a portion of the work in accordance with Article 16 of the General Conditions.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01026

SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. This Section includes preparation and submittal of a schedule of values, as specified herein and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, the General Conditions, Supplementary Conditions and Sections of Division 1 of these Specifications.

1.02 General:

- A. Timing of submittal: Submit to ENGINEER a schedule of values allocated to the various portions of the Work, within 10 days after the Effective Date of the Agreement.
- B. Supporting data: Upon request of ENGINEER, support the values with data, which will substantiate their correctness.
- C. Use of schedule: The schedule of values, unless objected to by ENGINEER, shall be used only as the basis for the CONTRACTOR's Applications for Payment.

1.03 Form and Content of Schedule of Values:

- A. Form and identification:
 - 1. Print schedule on 8 1/2" x 11" white paper
 - 2. CONTRACTOR's standard forms and automated printout may be used.
 - 3. Identify schedule with:
 - a. Title of Project and location.
 - b. ENGINEER.
 - c. Project number.
 - d. Name and address of CONTRACTOR.
 - e. Contract designation.
 - f. Date of Submission.
- B. Detail: Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Format:
 - 1. For unit price contracts, items shall use the bid items for the Schedule of Values.
 - 2. For stipulated price contracts, subdivide the Schedule of Values into logical portions of the Work, such as major work items or work in contiguous construction areas. Use Section 01310 (Construction Progress Schedules) to guide the subdivision of items. The items in the Schedule of Values will correlate directly with the tasks enumerated in the Construction Schedule. Each item shall include a directly proportional amount of CONTRACTOR's overhead and profit.
- D. Change Orders: For each Application for Payment, revise schedule to list Change Orders.

E. For the various portions of the Work:

1. For each item for which progress payments will be requested for stored materials, break down the value into:
 - a. The cost of the materials, delivered and unloaded, with taxes paid.
 - b. The total installed value.

F. The sum of all values listed in the schedule shall equal the total Contract Price.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01035

CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.01 Summary:

A. Section includes:

1. This Section includes, but is not necessarily limited to, procedures for modifying the Contract Documents, as herein specified and as necessary for the proper and complete performance of the Work.
2. Procedures for the following documents are included:
 - a. Bulletin.
3. Procedures for the following documents shall be in accordance with Section 00700 – General Conditions:
 - a. Field Order.
 - b. Work Change Directive.
 - c. Change Order.

B. Related Sections:

1. Documents affecting work of this Section include, but are not necessarily limited to:
 - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

1.02 Definitions:

A. Bulletin:

1. A document regarding possible changes to the Contract Documents which is issued by ENGINEER for OWNER and requests add or deduct costs from CONTRACTOR.

1.03 Bulletin:

A. Changes in cost:

1. Indicate add or deduct lump sum for each item.
2. Include:
 - a. Labor.
 - b. Material.
 - c. Overhead and profit.
 - d. All related work.
 - e. All trades and Subcontractors.
3. Provide a complete cost breakdown with supporting documentation.

B. Notification to ENGINEER:

1. Notify ENGINEER in writing if any of the listed items will cause a change in the Work for which a cost item is not provided in the Bulletin.

C. Submit:

1. Three copies to the ENGINEER on or before the date noted.

D. OWNER: May issue one or more Change Orders for some or all items listed.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 Schedules:

- A. Attached are the following forms:
 - 1. Bulletin.
 - 2. Field Order.
 - 3. Work Change Directive.
 - 4. Change Order.

BULLETIN

Page 1 of 2

CONTRACT FOR: BABCOK DRAIN

OWNER: Babcock Drain Drainage District
c/o Brian J. Wendling, Saginaw County Public Works Commissioner
111 S. Michigan Ave
Saginaw, MI 48602

CONTRACTOR:

ENGINEER:

LSG Engineers & Surveyors
3135 Pine Tree Road, Suite D
Lansing, MI 48911

DRAWING REVISION NO.: _____

DRAWING SHEETS ISSUED HEREWITH: _____

DISTRIBUTION: _____

The items below are being considered as possible changes to the Contract Documents for the Project. CONTRACTOR is requested to submit changes in cost, if any, for each item and indicate whether it is an addition to or a deduction from the Contract Price. Include all labor, materials, overhead and profit. After reviewing the effects of those changes in the Work, OWNER may issue a Change Order specifying which changes are to be incorporated in the Work, if any.

This Bulletin is not a Change Order and is not to be deemed authorization to proceed with the changes listed.

Additional work or materials, where proposed, shall meet the requirements of the Contract Documents, except where noted.

CONTRACTOR will be responsible for notifying ENGINEER, in writing, concerning any revision or clarification, which causes a change in the Contract Documents, but are not specifically mentioned as a cost item in the Bulletin.

CONTRACTOR shall return three (3) completed and signed copies of the Bulletin to ENGINEER on or before the due date noted above.

Each proposed change has been described briefly with additional information provided concerning detailed changes required for the major trades concerned. Only one total cost figure has been requested for each item on the Bulletin; however, a complete breakdown is required for each item as supporting documentation. This will allow OWNER to more easily evaluate the proposed cost changes. Each Bulletin item is an all-inclusive item and may concern work from several trades or Subcontractors. It is CONTRACTOR's responsibility to ensure that all work for each item has been included in the total cost figure provided to OWNER.

BULLETIN
Page 2 of 2

BULLETIN NO. _____
Date: _____

SPECIFICATION CHANGES

ITEM NO. 1:

Section _____ - _____

[Paragraph] _____

Add/Deduct \$ _____

ITEM NO. 2:

Section _____ - _____

[Paragraph] _____

Add/Deduct \$ _____

ITEM NO. 3:

Section _____ - _____

[Paragraph] _____

Add/Deduct \$ _____

CONTRACTOR:

Signature _____

Name and Title _____

Date _____

END OF BULLETIN

FIELD ORDER

CONTRACT FOR: BABCOCK DRAIN

FIELD ORDER NO. ____

DATE: _____

OWNER: Babcock Drain Drainage District
c/o Brian J. Wendling, Saginaw County Public Works Commissioner
111 S. Michigan Ave
Saginaw, MI 48602

CONTRACTOR:

ENGINEER:
LSG Engineers & Surveyors
3135 Pine Tree Road, Suite D
Lansing, MI 48911

You are directed to proceed promptly execute this Field Order issued in accordance with General Conditions Paragraph 11.02.A, for minor changes in the WORK without changes in Contract Price or Contract Times. If you consider that a change in Contract Price or Contract Times is required, please notify the ENGINEER immediately and before proceeding with this WORK:

Reference	_____	_____
	(Specification Section)	(Drawing / Detail)

Description: _____

Attachments: _____

Engineer: _____

ACKNOWLEDGED:

By: _____
CONTRACTOR

Name and Title of Signatory

Date: _____

END OF FIELD ORDER

WORK CHANGE DIRECTIVE

CONTRACT FOR: BABCOCK DRAIN

WORK CHANGE DIRECTIVE NO. ____

DATE: _____

OWNER: Babcock Drain Drainage District
c/o Brian J. Wendling, Saginaw County Public Works Commissioner
111 S. Michigan Ave
Saginaw, MI 48602

CONTRACTOR:

ENGINEER:

LSG Engineers & Surveyors
3135 Pine Tree Road, Suite D
Lansing, MI 48911

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

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Times any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price: _____ Time and Materials
_____ Unit Prices
_____ Cost plus Fixed Fee
_____ Other: _____.

Estimated increase (decrease) in Contract Price: \$ _____

(If the change involves an increase, do not exceed the estimated amount without further authorization.)

Method of determining change in Contract Times: _____ CONTRACTOR's records.
_____ ENGINEER's records
_____ Other: _____.

Estimated increase (decrease) in Contract Times: Substantial Completion: _____ days;
Ready for Final Payment: _____ days;

(If the change involves an increase, do not exceed the estimated times without further authorization.)

RECOMMENDED:

APPROVED:

By: _____

ENGINEER

By: _____

OWNER

Name and Title of Signatory

Date: _____

Name and Title of Signatory

Date: _____

END OF WORK CHANGE DIRECTIVE

For Bid Purposes Only

CHANGE ORDER NO. _____

- A. PROJECT NAME: Babcock Drain
- B. PROJECT LOCATION: Maple Grove Township, Saginaw County, MI
- C. SUBMITTED TO: Brian J. Wendling
Saginaw County Public Works Commissioner
111 S. Michigan
Saginaw, MI 48602
- D. DATE: _____
- E. CONTRACT NUMBER: _____
- F. CONTRACT DATE: _____
- G. CONTRACTOR: _____
- H. MAILING ADDRESS: _____

- I. PHONE NUMBER: _____
- J. FAX NUMBER: _____

The following changes are hereby made to the Contract Documents:

CHANGE IN CONTRACT PRICE:

Original Contract Price: _____

Current contract price, as adjusted by previous change orders: _____

The Contract Price due to this Change Order will be:

A) Decreased by: _____

B) Increased by: _____

The new Contract Price due to this Change Order: _____

CHANGE IN CONTRACT TIME:

Original Contract Times:

Substantial Completion _____ (date)
Ready for Final Payment _____ (date)

Current Contract Times, as adjusted by previous change orders:

Substantial Completion _____ (date)
Ready for Final Payment _____ (date)

Due to this Change Order:

Substantial Completion will be [increased/decreased] by _____ days
Ready for Final Payment will be [increased/decreased] by _____ days

The new Contract Times due to this Change Order:

Substantial Completion _____ (date)
Ready for Final Payment _____ (date)

Approvals Required:

To be effective, this Change Order must be accepted by the Owner and the Contractor if it changes the scope or objective of the project, or as may otherwise be required under the terms of the Contract.

THE NOTED CHANGES ARE RECOMMENDED BY: LSG Engineers & Surveyors.
ENGINEER

DATE: _____ BY _____, PE

THE NOTED CHANGES ARE ACCEPTED:

BY: Brian J. Wendling, Public Works Commissioner
OWNER

DATE: _____ BY _____

THE NOTED CHANGES ARE ACCEPTED: BY: _____
CONTRACTOR

DATE: _____ BY _____

END OF CHANGE ORDER

END OF SECTION

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For Bid Purposes Only

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. This Section includes all scheduling and administering of pre-construction and progress meetings as herein specified and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to:
 - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
- C. Scheduling and administration of meetings:
 - 1. Responsibility:
 - a. Pre-construction meeting: ENGINEER.
 - b. Progress meetings: ENGINEER.
 - 2. Procedures:
 - a. Prepare agenda.
 - b. Distribute written notice and agendas of meetings 4 days in advance of the meeting date.
 - c. Make physical arrangements for the meetings.
 - d. Preside at meetings.
 - e. Record minutes and include significant proceedings and decisions.
 - f. Distribute copies of the minutes within 4 days after meeting to:
 - i. Participants.
 - ii. Others affected by proceedings.

1.02 Preconstruction Meeting:

- A. Schedule:
 - 1. ENGINEER will schedule a pre-construction meeting before start of Work at the Site.
- B. Attendance:
 - 1. Representatives of the following parties are to be in attendance at the meeting:
 - a. OWNER.
 - b. ENGINEER.
 - c. CONTRACTOR.
 - d. Major Subcontractors.
 - e. Governmental or regulatory agencies when appropriate.
 - f. Utility companies.

1.03 Progress Meetings:

- A. Types of progress meetings:
 - 1. Regular.
 - 2. Called.
- B. Schedule meetings as follows unless otherwise approved by ENGINEER:
 - 1. Regular: Initially weekly and less often as Work progresses.
 - 2. Called: As the progress of the Work dictates.

C. Location:

1. Hold meetings at site or as indicated in the notice.

D. Attendance:

1. Representatives of the following parties are to be in attendance at the meeting.
 - a. ENGINEER.
 - b. CONTRACTOR.
 - c. Major Subcontractors as pertinent to the agenda.
 - d. OWNER's representative as appropriate.
 - e. Governmental or other regulatory agencies as appropriate.

E. Minimum agenda:

1. The minimum agenda for progress meetings shall consist of the following:
 - a. Review and approve minutes of previous meetings.
 - b. Review progress of the Work since the previous meeting.
 - c. Note field observations, problems and decisions.
 - d. Identify problems, which impede planned progress.
 - e. Review offsite fabrication problems.
 - f. Develop corrective measures and procedures to regain plan schedule.
 - g. Revise construction schedule as indicated.
 - h. Review submittal schedules; expedite as required to maintain schedule.
 - i. Maintenance of quality and work standards.
 - j. Review changes proposed by OWNER for their effect on the construction schedule and completion date.
 - k. Identify all claims and potential claims.
 - l. Pending changes and substitutions.
 - m. Complete other current business.

PART 2 – PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes:
 - 1. Description of work included under each pay item.
 - 2. Basis for measurement and payment for each pay item.
 - 3. Description of work generally incidental to other pay items.

1.02 Unit Quantities Specified

- A. Quantity estimates stated in the Bid Form are for contract and bidding purposes only. Quantities supplied or placed in the Work and verified/measured by the Engineer shall determine payment as stated in the Agreement.
- B. If actual work requires greater or lesser quantities than those quantities indicated in the Bid Form, provide the required quantities at the unit prices contracted, except as otherwise noted in the agreement.

1.03 Measurement of Quantities

- A. Measurement by Weight: Measured by ton or pound based on the scale weight.
- B. Measurement by Volume:
 - 1. Stockpiles: Measured by cubic dimension using mean length, width and height or thickness.
 - 2. Excavation and Embankment Materials: Measured by cubic dimension using the average end area method.
- C. Measurement by Area: Measured by square dimension using mean length and width or radius.
- D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- E. Measurement by Number: Measured by counting the number of units.

PART 2 – PRODUCTS Not Used

PART 3 – EXECUTION Not Used

PART 4 – PAY ITEMS

4.01 BID ITEM NO. 1 MAINTAINING TRAFFIC

- 1. Basis of Measurement and Payment: At the lump sum price for maintaining traffic.
- 2. Work Includes: All necessary traffic control measures and or traffic control devices to meet the requirements of the authority having jurisdiction. Includes all permit fees, bonds, insurance, labor, material, and equipment necessary to install and maintain traffic control devices.

4.02 BID ITEM NO. 2 & 3 ROADSIDE DITCH RESHAPING AND OPEN CHANNEL EXCAVATION

- 1. Basis of Measurement and Payment: At the unit price per foot for roadside ditch reshaping and open channel excavation.
- 2. Work Includes: All necessary material, labor, and equipment to excavate the existing roadside ditch bottom and the new open channel to required depths, grades, contours, and flow lines as shown on the plans, excavation for and installation of clay bottom where indicated on plans,

excavation of side drain inlets to right-of-way line, diversion of water and/or dewatering, site clearing and hauling, grubbing, and snagging of woods, shrubs, and brush within right-of-way, and installing field diversion swales and outlets through riprap lined openings as directed by the Engineer.

4.03 BID ITEM NO. 4 SPOIL LEVELING

1. Basis of Measurement and Payment: At the unit price per foot for spoil leveling.
2. Work Includes: All necessary material, labor, and equipment to level excavated spoils within the allowable work areas as indicated on the plans and described in the specifications.

4.04 BID ITEM NO. 5 SPOIL HAULING

1. Basis of Measurement and Payment: At the unit price per foot for spoil hauling. Hauling from areas where spoils were cast on both sides of the drain will be paid at 50 percent of the total length affected.
2. Work Includes: All necessary material, labor, and equipment to haul spoils (after leveling) from the top of bank adjacent to the drain and to stockpile the material at a location designated by the Owner or Engineer that is outside of the drain right-of-way or temporary construction easements. Work does not include any grading/leveling of the re-deposited material, or spoil material used for culvert backfill within the existing channel limits.

4.05 BID ITEM NO. 6a, 6b, 7a, 7b, 8a & 8b REMOVE, FURNISH & INSTALL CSP & CSPA Culvert:

1. Basis of Measurement and Payment: At the unit price bid per foot of culvert pipe for the sizes and types noted (all culverts shall be measured along the centerline of the pipe from end to end).
2. Work Includes: All necessary material, labor, equipment for installation, fence removal and replacement, excavation, trenching, excavation support systems, bedding, backfilling, compaction and grading as detailed in the plans.

4.06 BID ITEM NO. 9 RIPRAP, MDOT PLAIN:

1. Basis of Measurement and Payment: At the unit price bid per square yard.
2. Work Includes: All necessary material, labor, and equipment for installation of filter fabric, placement of riprap at the required thickness, excavation, and grading to provide required contours as shown on the plans and as indicated in the specifications. Includes riprap for channel slope protection, spillways, grade outs and lining of field diversion swale outlets.

4.07 BID ITEM NO. 10 CROSS VANE:

1. Basis of Measurement and Payment: At the unit price bid per each.
3. Work Includes: All necessary material, labor, and equipment for excavation and grading, installation of filter fabric, and placement of riprap at the required thickness, as shown on the plans and as indicated in the specifications.

4.08 BID ITEM NO. 11 & 12 REMOVE & REPLACE DRIVEWAY:

1. Basis of Measurement and Payment: At the unit price bid per square yard for the type of drive removal and replacement.
2. Work Includes: All necessary equipment, labor, and material required for removal and disposal of the existing drive and a complete installation according to the project plans and specifications.

4.09 BID ITEM NO. 13 TREE REMOVAL AND DISPOSAL

1. Basis of Measurement and Payment: At the lump sum price bid.
2. Work Includes: All necessary labor, equipment and material necessary to cut, remove and dispose of trees to the limits noted on the plans. Includes the removal of stumps, roots and other woody debris to facilitate the construction of the storm drain and berm.

4.10 BID ITEM NO. 14 SEEDING AND TOPSOIL:

1. Basis of Measurement and Payment: At the unit price bid per acre.
2. Work Includes: All necessary materials, labor, and equipment for placement of 4-inches of screened topsoil, raking to finished grade, grass seed and fertilizer to establish grass ground cover as noted on the plans and directed by the Engineer.

4.11 BID ITEM NO. 15 SEEDING:

1. Basis of Measurement and Payment: At the unit price bid per acre.
2. Work Includes: All necessary materials, labor, and equipment for grass seed and fertilizer to establish grass ground cover as noted on the plans and directed by the Engineer.

4.12 BID ITEM NO. 16 MULCH BLANKETS:

1. Basis of Measurement and Payment: At the unit price bid per square yard.
2. Work Includes: All necessary materials, labor, and equipment for installation of mulch blankets as noted on the plans and directed by the Engineer.

4.13 BID ITEM NO. 17 SOIL EROSION AND SEDIMENTATION CONTROL:

1. Basis of Measurement and Payment: At the lump sum price bid.
2. Work Includes: All necessary materials, equipment, and labor required for the installation, operation, and maintenance of soil erosion prevention and sedimentation control measures including but not limited to, slope scarification, temporary crossings, sandbags, check dams, street sweeping, dust control, and any measures not specifically identified on the plans, as determined necessary by the Engineer or Storm Water Operator.

Should the Contractor cause the need for additional soil erosion or sedimentation control measures beyond those shown on the plans, due to the Contractor's particular means and methods, the Contractor shall install the measures as directed by the Engineer or Storm Water Operator. Payment for the additional measures shall be included under this pay item and not those listed in Section 2271.

4.14 BID ITEM NO. 18 CLEANUP AND RESTORATION:

1. Basis of Measurement and Payment: At the lump sum price bid for Cleanup and Restoration.
2. Work Includes: All necessary material, labor, and equipment for removal and disposal of unsuitable materials, loading and removing all waste material as indicated in specifications and/or drawings, and all materials necessary to restore the work areas to their conditions before disturbance.

END OF SECTION

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SECTION 01300

SUBMITTALS

PART 1 – GENERAL

1.01 Summary

- A. This section includes the submittal of shop drawings, product data, equipment manuals and other information as indicated on the Drawings, as specified herein, or as necessary for the proper and complete performance of the Work.

1.02 Shop Drawings and Product Data

- A. The Contractor shall submit to the ENGINEER for review, for design concept, complete drawings and ENGINEERING data for all equipment, materials, and products to be incorporated in the Work. Shop drawings, engineering data, and/or product data sheets, as appropriate, shall be submitted for the following items, including, but not limited to:
 - 1. All piping, pipe fittings, and couplings.
 - 2. Miscellaneous iron castings and gratings, manhole frames and covers, curb inlets, manhole steps.
 - 3. All concrete and masonry accessories and steel reinforcement, including bending diagrams and bar schedules, ties, spreaders, chairs, inserts, form coatings, waterstops, curing and sealing compounds and bonding agents.
 - 4. Premixed grouts and mortars.
 - 5. All paints and protective coatings.
 - 6. Precast concrete manholes, sections, frames and covers, junction boxes, etc., inclusive of manhole boots and joint material, etc.
 - 7. Portland Cement Concrete mix designs.
 - 8. Paving mix design inclusive of sieve analysis and bituminous content.
 - 9. Grass seed, polymers (polyacrylamides) and commercial mulches.
 - 10. Commercially produced soil erosion products such as erosion blankets, turf reinforcement mats, silt fence, erosion eels, straw wattles, and inlet protection devices.

1.03 Miscellaneous Submittals

- A. The Contractor shall submit to the ENGINEER miscellaneous information, procedures, test data, samples, etc., in the manner and at the time specified in these Specifications and Contract Documents. Miscellaneous submittals shall include, but not be limited to the following:
 - 1. Procedures for diverting stormwater flows during construction.
 - 2. Factory test data and results where specified for specific items of equipment.
 - 3. Preliminary concrete mix design reports.
 - 4. Satisfactory written evidence in the form of laboratory or mill test reports indicating that all cement, aggregate, masonry, structural steel, fencing, castings, steel reinforcement, conduit, pipe, grout, waterproof materials, grass seed and other items incorporated in the Work follow the requirements of these Specifications.
 - 5. Copies of original invoices of all equipment delivered to the site.
 - 6. When requested, analysis and design data on concrete formwork and sheeting and shoring.
 - 7. Drawings and details of erosion and sediment control structures, if significantly different from the Drawings approved by the Ingham County Drain Commissioner.
 - 8. Equipment manuals.
 - 9. Written evidence of equipment warranties.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

For Bid Purposes Only

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

PART 1 – GENERAL

1.01 Summary

- A. Section includes:
 - 1. This Section includes, but is not necessarily limited to, the preparation, furnishing, distribution and periodic revision of construction progress schedules as herein specified and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to:
 - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

PART 2 – PRODUCTS

2.01 Form of Schedule:

- A. Preparation:
 - 1. Prepare in the form of a horizontal bar chart, CPM network, or other form previously approved by the ENGINEER.
 - 2. Provide a separate horizontal bar column or part for each trade or operation.
 - 3. Prepare the schedule in the chronological order of the beginning of each item of Work.
 - 4. Identify each column or path by:
 - a. Major Specification Section number.
 - b. Distinct graphic delineation.
 - 5. Use a horizontal time scale and identify the first workday of each week.
 - 6. Allow space for updating.
- B. Size:
 - 1. The schedule sheets shall be 11-inch x 17-inch, or 24-inch x 36-inch, unless otherwise approved by ENGINEER.

2.02 Content of Schedules:

- A. Construction sequence:
 - 1. Provide a complete sequence of construction activity identifying work of separate stages and milestones.
 - 2. For Shop Drawing, project data and Samples indicate the following:
 - a. Submittal dates.
 - b. Dates review copies will be required.
 - 3. Show decision dates for section of finishes.
 - 4. Show product procurement and delivery dates, including those furnished by OWNER or under Allowances.
 - 5. Show dates for beginning and completion of each element of construction.
- B. Percentage completion:
 - 1. Show the projected percentage of completion for each item of work as of the first day of each month.

C. Sub-schedules:

1. Provide separate sub-schedules showing submittals, review times, procurement schedules and delivery dates.
2. Provide sub-schedules to define critical proportions of the entire schedule.

PART 3 – EXECUTION

3.01 Submittals:

A. Preliminary schedule:

1. Submit the preliminary schedule within 10 days after the Effective Date of Agreement.
2. ENGINEER will review schedules and will return the reviewed copy within 15 days after receipt.
3. If required, re-submit within 7 days after receipt of a returned review copy.
4. Meet with ENGINEER at least 10 days prior to the sub-mission of the first Application for Payment to review the schedule.

B. Periodic adjustment:

1. Monthly, submit a revised schedule depicting adjustments and progress to the first day of each month.

C. Number of copies

1. Submit the number of copies required by the CONTRACTOR, plus 4 copies to be retained by ENGINEER.

3.02 Distribution:

A. Reviewed schedules:

1. Distribute copies of the reviewed schedules to:
 - a. Job Site file.
 - b. Subcontractors
 - c. Other concerned parties.

B. Instruction to recipients:

1. Instruct recipients to report all inability to comply with the schedule, and provide detailed explanations with suggested remedies.

3.03 Adjustment of Progress Schedule:

A. Changes:

1. Show all changes occurring since previous submission of the schedule.

B. Progress:

1. Indicate progress of each activity and show completion dates.

C. Other items:

1. Include major changes in scope.
2. Include activities modified since previous updating.
3. Include revised projections due to changes.
4. Include other identifiable changes.

D. Narrative report:

1. Provide a narrative report including:
 - a. A discussion of problem areas including current and anticipated delay factors and their impact.
 - b. Direct action taken, or proposed, and its effect.

- c. A description of revisions including:
 - i. Their effect on the schedule due to change of scope.
 - ii. Revisions in duration of activities.
 - iii. Other changes that may affect the schedule.
- d. The status of completion of Milestone.

END OF SECTION

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SECTION 01400

QUALITY CONTROL

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. Related sections
 - 2. Quality assurance and control of installation.
 - 3. Reference
 - 4. Field Samples
 - 5. Inspection and testing laboratory services
 - 6. Manufacturers' field services and reports.
 - 7. Project Layout
- B. Related Sections
 - 1. Section 01300 – Submittals: Submission of Manufacturers' Instructions and Certificates.
 - 2. Section 01600 – Material and Equipment: Requirements for material and product quality.

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 manufacturer's 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 standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standard when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification for ENGINEER before proceeding.
- D. The contractual relationship for the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.04 Field Samples

- A. Install field samples at the site as required by individual specifications Section for review.
- B. Acceptable samples represent a quality level for the Work.

- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by ENGINEER and storm drain installation.

1.05 Inspection and Testing Laboratory Services

- A. Notify ENGINEER 48 hours prior to scheduled construction inspection days and material testing.
- B. Construction inspection will be provided for drain crossing installations and storm drain installations. Construction inspection for open drain excavation will be provided as determined necessary by ENGINEER.
- C. OWNER will pay for services to perform construction inspection and material testing according to the specifications.
- D. Inspections, tests, and other services specified in individual specification Sections will be performed by the ENGINEER, as required.
- E. Make arrangements with ENGINEER and pay for additional samples and tests required for CONTRACTOR's use.
- F. Retesting required because of non-conformance to specified requirements shall be performed. Payment for retesting will be charged to the CONTRACTOR by deducting construction inspection or material testing charges from the Contract Price.
- G. At the discretion of the ENGINEER, survey shots of the dredging may be conducted to determine amount excavated.
- H. The ENGINEER will perform inspections, tests, and other services specified in individual specification sections and as required by the OWNER.
- I. Reports will be submitted by the ENGINEER to the OWNER; in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- J. Cooperate with the ENGINEER and the OWNER; furnish samples of materials, mix designs, equipment, tools, storage and assistance as requested.
- K. Notify ENGINEER 2 working days prior to expected time for operations requiring services.
- L. Make arrangements with ENGINEER and pay for additional samples and tests required for CONTRACTOR's use.

1.06 Manufacturers' Field Services and Reports

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, and to initiate instructions when necessary.
- B. Individuals to report observations and site decisions or instructions given to applicators or installer that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report within 30 days of observation to the ENGINEER for review.

1.07 Project Layout

- A. Benchmarks and Control Elevations
 - 1. Elevations for proposed Work shall be set from benchmarks established for the project.

2. Verify elevations of existing features against project benchmarks.
3. Notify ENGINEER of conflicts in elevations, which affect the proposed Work.

B. Alignment and Construction Stakes

1. Provide the ENGINEER with 48 hours advance notice for all construction staking required by him.
2. The ENGINEER will set suitable stakes and benchmarks showing the location and elevations of the various parts of the work.
3. ENGINEER will provide cut sheets describing the cut/fill, method of alignment and stakeout and benchmarks.
4. Undertake no work until such stakes and benchmarks have been set by the ENGINEER.
5. CONTRACTOR is responsible for detail dimensions and elevations measured from the lines, grades and elevations so established.
6. No changes in alignment shall be made without the written permission from the OWNER or the ENGINEER.
7. Take due and proper precautions for the preservation of stakes and benchmarks, and shall see to it that the work at all time proceeds in accordance therewith.
8. Any restaking necessary, whether due to vandalism, construction operations or any other cause, will be done by the ENGINEER at the expense of the CONTRACTOR.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

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SECTION 01420

REFERENCES

PART 1 – GENERAL

1.01 Standard Symbols and Abbreviations Used in Plans, Specifications, and Reports

ABBREVIATIONS

BR.	Branch	EQUA.	Equation	NO.	Number
CONC.	Concrete	EST.	Estimate	PT.	Point
COR.	Corner	FRL.	Fractional	RD.	Road
CTR.	Center	GA.	Gage	SEC.	Section
DIA.	Diameter	INV.	Invert	STA.	Station
EA.	Each	MAX.	Maximum	STD.	Standard
ELEV.	Elevation	MIN.	Minimum		

MEASUREMENTS

<i>Distance</i>		<i>Time</i>	
FT. or '	Feet	HR.	Hour
IN. or "	Inch	MIN.	Minute
LF.	Linear Feet	SEC.	Second
RD.	Rod		
YD.	Yard	<i>Rate</i>	
		C.F.S.	Cubic Feet per Second
<i>Area</i>		F.P.S.	Feet per Second
AC.	Acre		
S.F. or SQ. FT.	Square Feet	<i>Weight</i>	
S.Y. or SQ. YD.	Square Yard	LB.	Pound
<i>Volume</i>		<i>Pressure</i>	
C.F.	Cubic Feet	P.S.I.	Pounds per Square Inch
C.Y.	Cubic Yard		

ORGANIZATIONS

AISC	American Institute of Steel Construction
ASTM	American Society of Testing Materials
MDA	Michigan Department of Agriculture
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MDOT	Michigan Department of Transportation
SCS	Soil Conservation Service
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WRC	Water Resources Commission(er)

SYMBOLS

@	At	C/L	Center Line	w/	With
%	Percent	F/L	Fence Line	w/o	Without
BC	Begin Curve	P/L	Property Line		
EC	End Curve	Q	Flow (C.F.S.)		

DIRECTIONS

LT. or L.	Left	N.	North	U.S.	Upstream
RT. or R.	Right	E.	East	D.S.	Downstream
		S.	South		
		W.	West		

PIPE

C.I.P.	Cast Iron Pipe	P.V.C.	Polyvinyl Chloride Pipe
C.M.P.	Corrugated Metal Pipe	R.C.P.	Reinforced Concrete Pipe
C.S.P.	Corrugated Steel Pipe	S.L.C.P.P.	Smooth-lined Corrugated Plastic Pipe
C.S.P.A.	Corrugated Steel Pipe Arch	S.P.	Steel Pipe
C.P.	Concrete Pipe (non-reinforced)	V.C.P.	Vitrified Clay Pipe
F.E.S.	Flared End Section		

OTHER

Survey Controls

BM	Bench Mark
POB	Point of Beginning
POE	Point of Ending
PI	Point of Intersection
PC	Property Corner
ROW	Right-of-Way

Descriptors

HP	High Pressure
LP	Low Pressure
MP	Medium Pressure

Field Features

CB	Catch Basin
DB	Ditch Bottom
ES	End Slope
FL	Flow Line
MH	Manhole
SS	Side Slope
SB	Soil Boring
TO	Tile Outlet
UP	Utility Pole
WC	Watercourse

Dimensions

BW	Bottom Width
EGL	Energy Grade Line
HGL	Hydraulic Grade Line
ID	Inside Diameter
LC	Low Chord
OD	Outside Diameter
TC	Top Chord
TW	
VH	Vertical Height
WL	Water Level

PART 2 – PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. Barriers and Enclosures
 - 2. Water Control
 - 3. Protection of Installed Work
 - 4. Protection of Existing Utilities
 - 5. Protection of Private Wells
 - 6. Protection of Landscaping, Mailboxes, Drives
 - 7. Progress Cleaning
 - 8. Removal of Utilities, Facilities, and Control
 - 9. Temporary Driveways
 - 10. Temporary Sanitary Facilities
 - 11. Temporary Fencing and Barrier Fence
 - 12. Coordination with Local Businesses
- B. Related Sections
 - 1. Section 01570 – Maintaining Traffic
 - 2. Section 01700 – Contract Closeout: Final Cleaning

1.02 Barriers and Enclosures

- A. Provide barriers to prevent unauthorized entry to construction areas to allow for OWNER's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide protection for plant life designated to remain. Replace damaged plant life.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- D. Provide access to all residences and adjacent buildings for use during construction.

1.03 Water Control

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Trenches shall be dewatered to provide a stable base for structures and piping.

1.04 Protection of Installed Work

- A. Protect installed work and provide special protection where specified in individual specification sections. All road excavations will be brought up to grade each night or protected with orange construction fencing to prevent intrusion into the work area.
- B. Provide temporary and removable protection for installed products. Control Activity in immediate work area to minimize damage.

- C. Prohibit traffic from entering landscaped areas.

1.05 Protection of Existing Utilities

- A. CONTRACTOR shall CALL "MISS-DIG" (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO CONSTRUCTION.
- B. Protect utilities encountered during the work. Repair or replace damaged utilities.
- C. Utilities must remain in service. If it becomes necessary to interrupt a utility service, the utility authority must be notified immediately (but not less than 24 hours in advance of service interruption) and steps taken to restore temporary or permanent service as soon as possible.
- D. Maintain outlets for drains. Provide temporary pumping if necessary.
- E. Expose utility mains and services by hand in the trench.
- F. Where utility or drainage piping crosses the trench, support the piping according to the utility authority's standards and backfill to the top with compacted sand.

1.06 Protection of Private Wells

- A. If during the construction of this project the excavations and dewatering of a trench or drain channel causes a private well to fail, the CONTRACTOR shall provide both a temporary and permanent water source for this individual.

1.07 Protection of Landscaping, Mailboxes, Drives

- A. Protect landscaped areas. Damaged areas shall be replaced in kind.
- B. Protect trees, shrubs, and bushes:
 - 1. Where trees, shrubs, and bushes are too large to be replaced in kind, the proposed utility shall be installed in a boring or tunneling operation unless written consent is given by the property OWNER for removal. OWNER and ENGINEER shall each be given one copy of consent letters.
 - 2. Where requested by the Property OWNER, timber from removed trees shall be cut into 6-foot lengths and stockpiled along the work or as specified in the consent letter.
 - 3. Proper disposal of removed trees or sections of removed trees not wanted by the property OWNER shall become the responsibility of the CONTRACTOR.
 - 4. Trees, shrubs, and bushes that are removed and replaced shall be transplanted by an established nursery.
- C. Protect mailboxes. Relocate temporarily until mailboxes can be returned to original location. All mail boxes and posts must be returned to their original condition or better at no additional cost to the project.
- D. Protect drives, roadway and sidewalks. Repair as required in following sections.

1.08 Progress Cleaning

- A. Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.
- B. Clean road surface daily to the OWNER's and/or ENGINEER's satisfaction

- C. Complete leveling, remove excess material and debris and restore drainage not more than 1000 feet behind construction.
 - D. Execute Work by methods to minimize raising dust from construction operations.
 - E. Provide positive means to prevent air-borne dust from dispersing into the atmosphere.
 - F. Remove waste materials, debris, and rubbish from site daily and dispose off-site.
- 1.09 Removal of Utilities, Facilities and Controls.
- A. Remove temporary above-grade or buried utilities, equipment, facilities, and materials prior to substantial completion and 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.
 - D. A sufficient sum of money to remove and replace, or repair, any utilities damaged or relocated during the construction of the project shall be included in total contract amount.
- 1.10 Temporary Driveway
- A. Temporary driveways shall be constructed to provide safe, stable, and smooth access.
 - B. Driveways shall be finished and accepted by OWNER before 100 percent completion of work is accepted.
- 1.11 Temporary Sanitary Facilities
- A. Provide and maintain an adequate number of temporary sanitary facilities for the use of all persons employed on the Work during construction. Provide enclosed, weatherproof facilities obscured from public view to the greatest practical extent.
 - B. Comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.
 - C. Deliver, setup and stock with paper products and hand cleansers on each work site.
 - D. Service portable unit three times per week, including pumping, and restocking paper products and cleansers.
 - E. Pick up units after work is complete.
- 1.12 Temporary Fencing and Barrier Fence
- A. Standard wind stop snow fencing installed according to manufacturer's recommendation.
- 1.13 Coordination with Local Businesses
- A. Where temporary road or driveway closures are necessary for execution of the Work, CONTRACTOR shall coordinate with affected business owners to develop an access plan for suppliers and customers.
 - B. An access plan shall be approved by the OWNER and ENGINEER.

- C. Any part of an access plan that involves work within a public right-of-way (e.g. “business open” signage) shall conform to the rules and regulations of the public agency having jurisdiction.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

PART 4 – PAYMENT

4.01 Measurement and Payment see Section 01270.

END OF SECTION

SECTION 01570

MAINTAINING TRAFFIC

PART 1 – GENERAL

1.01 Summary:

A. Section Includes:

1. Traffic Control.
2. Signs, Signals, and Devices.
3. Traffic Signs and Signals.
4. Construction Parking Control.
5. Regulators.
6. Lighting Devices.
7. Haul Routes.
8. Removal.

B. Related Sections

1. Section 01010 – Summary of work.
2. Section 01500 – Construction Facilities and Temporary Controls: Barriers and enclosures.

1.02 Traffic Control

- A. Comply with the rules and regulations of the authority (County, City, Township, Village, or MDOT) having jurisdiction over the road.
- B. Provide, install, and maintain traffic control devices.
- C. Control devices shall conform to the Michigan Manual of Uniform Traffic Control Devices Part 6 Construction and Maintenance, Quality Standards for Work Zone Traffic Control Devices published by the American Safety Services Association (ATSSA) and the MDOT Standard Specifications for Highway Construction.
- D. Maintain thru-traffic unless written permission to do otherwise is obtained from the authority having jurisdiction over the road.
- E. Work hours will be from 7:00 AM to 7:00 PM, Monday – Friday (except legal holidays). No work on Saturdays, Sundays or Holidays without written approval of OWNER.
- F. Provide and maintain detour signs if allowed to close road.

1.03 Signs, Signals and Devices

- A. Traffic Control Signals: As approved by local jurisdiction.
- B. Traffic Cones and Drums, and Lights: As approved by local jurisdiction.
- C. Traffic Regulators (Flagman) Equipment: As approved by local jurisdiction.
- D. Post Mounted and wall Mounted Traffic Control and Informational Signs: Specified in paragraph 1.02 Traffic Control.
- E. Automatic Traffic Control Signals: As approved by local jurisdiction.

1.04 Traffic Signs and Signals

- A. Install traffic control devices at approaches to site and on site, at crossroads, for detours, in parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Install and operate traffic signals to direct and maintain orderly flow of traffic in areas under CONTRACTOR's control, and areas affected by CONTRACTOR's operations.
- C. Relocate traffic control devices as work progresses, to maintain effective traffic control.

1.05 Construction Parking Control

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and landowners' operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.
- D. Staging of equipment and storage of materials will not be allowed on business or residential parking areas without written permission from the landowner.

1.06 Regulators (Flag Persons)

- A. Provide trained and equipped flag persons to move vehicles and pedestrians when construction operations or traffic encroach on public traffic lanes.

1.07 Lighting Devices

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

1.08 Haul Routes

- A. Consult with authority having jurisdiction or landowner in establishing haul routes and site access.
- B. A signed landowner agreement must be provided to ENGINEER prior to accessing project over private lands.
- C. Confine construction traffic to designated haul routes.
- D. Provide traffic control devices and/or regulators at critical areas of haul routes to minimize interference with public traffic.

1.09 Removal

- A. Remove equipment and traffic control devices when no longer required.
- B. Repair damage caused by installation.
- C. Remove post settings to a depth of 2 feet.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

PART 4 – PAYMENT

4.01 Measurement and Payment See Section 01270.

END OF SECTION

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SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 Summary:

- A. Section Includes
 - 1. Products
 - 2. Transportation and Handling.
 - 3. Storage and Protection
 - 4. Product Options.
 - 5. Substitutions.
- B. Related Sections
 - 1. Section 00100 – Instructions to Bidders: Substitute/"Or Equal" Items.
 - 2. Section 01400 – Quality Control.

PART 2 – PRODUCTS

2.01 Products:

- A. Means new material, machinery, components, equipment, fixtures, and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

2.02 Product Options

- A. Products specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 Substitutions

- A. ENGINEER will consider requests for substitutions only within 15 days *after* date of OWNER/CONTRACTOR agreement.
- B. Substitutions maybe considered when a product becomes unavailable through no fault of the CONTRACTOR.
- C. Document each request with complete data substantiating compliance of proposed substitution with contract documents.
- D. A request constitutes a representation that the CONTRACTOR:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified work.

3. Will coordinate installation and make changes to other work, which may be required for the work to be complete with no additional cost to OWNER.
 4. Waives claims for additional costs or time extension, which may subsequently become apparent.
 5. Will reimburse OWNER for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contact Documents.
- F. Substitution Submittal Procedure:
1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed substitution.
 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
 3. The ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject request.

PART 3 – EXECUTION

3.01 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.

3.02 Storage and Protection

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- 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. Avoid 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.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. Substantial Completion.
 - 2. Final Inspection.
 - 3. Re-Inspection Costs.
 - 4. Evidence of Payment and Release of Liens.
 - 5. Final Adjustment of Accounts.
 - 6. Final Application for Payment.
- B. Related Sections:
 - 1. General Conditions, Supplementary Conditions and Section 01720 – Project Record Documents in Division 1 of these Specifications.

1.02 Substantial Completion:

- A. CONTRACTOR notification:
 - 1. When CONTRACTOR considers the Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete and request that ENGINEER issue a certificate of Substantial Completion.
 - 2. At the same time, CONTRACTOR shall submit to OWNER and ENGINEER an initial draft of punch list items for correction or completion before final payment.
- B. ENGINEER'S inspection:
 - 1. The ENGINEER will conduct an inspection:
 - a. Promptly after CONTRACTOR'S notification.
 - b. Together with OWNER and CONTRACTOR.
- C. ENGINEER'S determination of Substantial Completion:
 - 1. Should ENGINEER consider the Work substantially complete, ENGINEER will deliver to OWNER a preliminary Certificate of Substantial Completion, which shall fix the date of Substantial Completion, and attach to the certificate a punch list of items for completion or correction before final payment.
 - 2. Should the ENGINEER consider the Work not substantially complete, ENGINEER will, within 14 days after submission of the preliminary certificate to OWNER, notify CONTRACTOR in writing that the Work is not substantially complete, stating the reasons therefor.
- D. CONTRACTOR shall:
 - 1. Promptly begin work on the punch list of items to be corrected prior to final payment; or,
 - 2. Complete such Work as is necessary to render it Substantially Complete (and re-submit a new notification and revised punch list to the OWNER and ENGINEER).

1.03 Final Inspection:

- E. CONTRACTOR notification:
 - 1. CONTRACTOR shall submit written notice to the ENGINEER that the entire Work or an agreed portion thereof is complete and ready for final inspection.

F. ENGINEER'S inspection:

1. The ENGINEER will make final inspection:
 - a. Promptly after CONTRACTOR'S notification.
 - b. Together with OWNER and CONTRACTOR.

G. ENGINEER'S determination of Final Completion:

1. Should ENGINEER consider the Work finally complete in accordance with the requirements of the Contract Documents, ENGINEER shall require CONTRACTOR to make Project Closeout Submittals.
2. Should ENGINEER consider the Work not finally complete:
 - a. ENGINEER shall notify CONTRACTOR in writing stating the reasons therefor.
 - b. CONTRACTOR shall:
 - i. Take immediate steps to remedy the stated deficiencies.
 - ii. Send a second written notice to ENGINEER certifying that the Work is complete.
 - c. ENGINEER and OWNER will re-inspect the Work.

1.04 Re-Inspection Costs:

- A. Should ENGINEER be required to perform second inspections because of failure of the Work to comply with the original certifications of CONTRACTOR, OWNER will compensate ENGINEER for additional services and deduct the amount paid from payment or payments to CONTRACTOR.

1.05 Evidence of Payment and Release of Liens:

A. Affidavits

1. Submit with final Application for Payment an affidavit of payment of debts and release of claims.
2. Affidavit shall include:
 - a. CONTRACTOR'S release or waiver of lien.
 - b. Consent of surety of final payment.
 - c. Separate releases or waivers of liens for Subcontractors, Suppliers and others with lien rights against property of OWNER together with a list of those parties.

B. Execution:

1. All submittals shall be duly executed before delivery to ENGINEER.

1.06 Final Adjustment of Accounts:

A. Final statement:

1. Submit a final statement of accounting, which reflects all adjustment, to ENGINEER. This statement shall contain the following:
 - a. Original Contract Price.
 - b. Additions and deductions.
 - c. Total Contract Price as adjusted.
 - d. Previous payments.
 - e. Sum remaining due.

B. Final Change Order:

1. ENGINEER will prepare a final Change Order reflecting approved adjustments to the Contract Price not previously made by Change Orders and based on final field measurements of quantities installed.

1.07 Final Application for Payment:

- A. CONTRACTOR shall submit a final Application for Payment in accordance with the requirements of the Contract Documents.

- B. Disposition of final Application for Payment:
1. ENGINEER will, within 10 days after receipt of the Application for Payment:
 - a. Submit to OWNER a written recommendation for payment.
 - b. Submit to OWNER and CONTRACTOR a written notice that the Work is acceptable subject to the provisions of Section 00700 – General Conditions.
 2. OWNER will, within 30 days after receipt of the Application for Payment and ENGINEER'S recommendations in accordance with the Contract Documents, pay to CONTRACTOR the amount recommended.
- C. If the Application for Payment, the Work or both are unacceptable:
1. ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment.
 2. CONTRACTOR shall make the necessary corrections and re-submit the Application for Payment.
- D. If ENGINEER confirms that final completion of the Work is significantly delayed through no fault of the CONTRACTOR:
1. OWNER shall make payment of the balance due for that portion of the Work fully completed and accepted.
 2. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
 3. CONTRACTOR may submit a written request for a reduction of retainage; the request shall be accompanied by a cost estimate and schedule to complete all remaining Work items. If approved by the OWNER, CONTRACTOR shall submit a properly executed Consent of Surety form base on the amount of reduction.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

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For Bid Purposes Only

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 Summary:

- A. Section includes:
 - 1. Maintenance of Documents and Samples.
 - 2. Recording.
 - 3. Submittal.
- B. Related Sections
 - 1. General Conditions, Supplementary Conditions and Section in Division 1 of these Specifications.

1.02 Maintenance of Documents and Samples:

- A. Maintenance:
 - 1. Maintain documents in a clean, dry, legible condition and in good order.
 - 2. Do not use record documents for construction purposes.
- B. Availability: Make documents and samples available at all times for inspection by ENGINEER.

1.03 Recording:

- A. Labeling: Label each document “PROJECT RECORD” in neat large printed letters.
- B. Recording:
 - 1. Record actual revisions to the Work.
 - 2. Record information concurrently with construction progress.
 - 3. Do not conceal any work until required information is recorded.
- C. Drawings:
 - 1. Legibly mark, with notes or graphic representations, to record actual construction:
 - a. Depths of various elements of foundation in relation to approved datum.
 - b. Horizontal and vertical locations of Underground Facilities and appurtenances, referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - d. Field changes of dimension and detail.
 - e. Change made by Field Order, Work Change Directive or Change Order.
 - f. Details not made on original Contract Drawings.
 - 2. After review of the Record Drawings, the ENGINEER may elect to supply electronic CADD files to the CONTRACTOR in an appropriate format for use by the CONTRACTOR to assist in the generation of “As-Built” record drawings.

1.04 Submittal:

- A. Delivery: At Contract closeout, deliver record documents to ENGINEER for OWNER.
- B. Transmittal letter:
 - 1. Accompany submittal with transmittal letter in duplicate, containing:
 - a. Date
 - b. Project title and number.

- c. CONTRACTOR'S name and address.
- d. Title and number of each Record Document.
- e. Signature of CONTRACTOR or his authorized representative.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

For Bid Purposes Only

DIVISION 2

SITE WORK

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For Bid Purposes Only

SECTION 02000

MISCELLANEOUS SPECIFICATIONS

PART 1 – GENERAL

1.01 Easements

- A. The OWNER will provide all rights-of-way and easements in or beneath which drains, pipes and other structures will be constructed under this Contract. The CONTRACTOR shall take due and proper precautions to protect all adjacent structures and shall hold himself strictly within the rights-of-way secured by the OWNER.
- B. In the event that the OWNER is unable to obtain rights-of-way before construction begins, the CONTRACTOR shall not be entitled to make or assert a claim for damage for said delay; but time for completion of the work will be extended to such time as the OWNER determines will compensate for the time lost by such delay.
- C. Attention of bidders is directed to the fact that some of the easements obtained for this project may have conditional clauses contained therein. It shall be the CONTRACTOR's responsibility to make himself thoroughly familiar with any conditions of easements acquired by the OWNER and to base his bid on such conditions. Failure to familiarize himself with easement conditions will not be considered a cause for extra compensation by the CONTRACTOR.
- D. Areas disturbed on private easements shall be reasonably restored to their original condition. Restoration of these areas by the CONTRACTOR shall be subject to the same conditions as those disturbed within the road right-of-way. Also, no topsoil shall be replaced while the ground is in a wet and/or muddy condition. The existing clean topsoil, free of debris, grease, roots, etc., encountered along the route of construction in easements, shall be pushed back and preserved for use in restoration following completion of the installation. The topsoil must remain on each easement parcel or lot where it exists. Removal of topsoil from the project or movement of topsoil from easements in one portion of the project to another portion of the project will not be allowed. The existing sand encountered along the route of construction in easements, shall remain on each easement parcel or lot where it exists. Removal of sand from the project will not be allowed.

1.02 Private Wells

- A. If during the construction of this project the excavation or dewatering of the trench or drain channel causes a private well to fail, it shall be the CONTRACTOR's responsibility to provide both a temporary and permanent replacement water source for this individual.

1.03 Work within a Public Road Right-of-Way

- A. All work performed within a public road right-of-way shall be performed in accordance with the requirements of the agency having jurisdiction. Before commencing work within the right-of-way, the CONTRACTOR shall obtain all necessary permits, post all bonds and pay all inspection costs for the work as will be required by the agency having jurisdiction. Submit a copy of all necessary permits to the OWNER.
- B. Signs within a public road right-of-way shall be removed and replaced by the agency having jurisdiction. The CONTRACTOR shall provide adequate notice prior to requiring sign removal (verify at time of permit application). Costs shall be paid by the CONTRACTOR and shall be incidental to construction.

- C. The CONTRACTOR shall be responsible within the public road right-of-way for any conditions due to improper workmanship, materials or any cause whatsoever attributable to operations included in this Contract, as evidenced by trench settlement, pavement failure, or other conspicuous defects or damages for such period as shall be determined by the agency having jurisdiction. If the agency having jurisdiction issues a complaint during the required performance period, CONTRACTOR shall correct such defects within ten (10) days of receiving written notice from the OWNER.

1.04 Responsibility for Moving Structures

- A. Any structure that (in the opinion of the ENGINEER) must be moved or changed in order to permit the proper construction of the work, will be moved or changed by its respective owner at the insistence of the OWNER. Examples of such structures include (but are not limited to) buildings, poles, conduits, manholes, catch basins, valve boxes, trees, water mains, water services, storm and sanitary sewers, and gas mains and services.
- B. Any structure that (in the opinion of the ENGINEER) can remain in place shall be undisturbed and the CONTRACTOR shall take all necessary precautions for its protection and be fully responsible for its protection. All costs resulting from moving of such structure shall be borne by the CONTRACTOR and shall be included in the unit prices or lump sums bid for the work included in the contract.

PART 2 – PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 02050

REMOVALS

PART 1 – GENERAL

1.01 Summary

- A. Section Includes:
 - 1. Salvageable Material.
 - 2. Signs and Traffic Signals.
 - 3. Pavement, Sidewalks and Curbs.
 - 3. Abandoning Existing Storm Structures and Pipe.
- B. Related Sections:
 - 1. Section 02110 – Site Clearing
 - 2. Section 02125 – Tree Protection and Retention
 - 2. Section 02222 – Excavation

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

3.01 Preparation

- A. Protect structures, pavement, utilities, and vegetation to remain.
- B. Set up all barriers, including those for tree protection per Section 02125.

3.02 General

- A. CONTRACTOR shall raze, remove, and dispose of all structures and obstructions identified on the Project, except utilities, structures and obstructions removed under other contractual agreements or as otherwise provided for in the Contract Documents, and salvageable material designated to remain the property of OWNER.
- B. Resulting trenches, holes and pits shall be backfilled, except in areas to be excavated.

3.03 Culverts and Salvageable Material

- A. All culverts removed will become the property of the contractor.
- B. Salvageable material designated in the Contract Documents, or by ENGINEER, to remain the property of OWNER shall be removed without damage, in sections or pieces that may be readily transported, and shall be stockpiled by CONTRACTOR at specified locations within the project limits.
- B. CONTRACTOR shall safeguard salvageable materials and shall be responsible for the expense of repairing or replacing damaged or missing material until it is either incorporated into the Work or transferred to OWNER.

3.04 Signs and Traffic Signals

- A. Signs and traffic signals shall be removed by the agency having jurisdiction. See Section 02000 Miscellaneous Specifications – Work Within a Public Right-of Way.
- B. If the agency having jurisdiction determines that the CONTRACTOR may safely remove signs and traffic signals:
 - 1. Removal of signs shall include removal of posts, footings, pedestals, sign panels, and brackets. Concrete adhering to salvageable sign posts shall be removed. Removal of sign panels shall include removal of the panel and its attachment hardware from the existing installation and adjusting the spacing of the remaining panels.
 - 2. The removal of traffic signal items shall include poles, mast arms, signal heads, span wires, footings, all attachment hardware, and other incidental materials. Removal of signal poles or pedestal poles shall include pole, span wire, cable, signal heads, overhead sign support wire, footings, and pedestrian push buttons. Removal of traffic signal controller and cabinet shall include removal of the footing and all auxiliary equipment contained within the cabinet.

3.05 Pavement, Sidewalks and Curbs

- A. All asphalt or concrete pavement, sidewalks, structures, curbs, gutters, etc., designated for removal, shall be disposed of off-site by CONTRACTOR at CONTRACTOR'S expense. Sawing of concrete and asphalt shall be done to a true line, with a vertical face, unless otherwise specified. The minimum depth of a saw cut shall be two (2) inches. For reinforced concrete, the minimum depth shall be two (2) inches, or to the depth of the reinforcing steel, whichever occurs first.

PART 4 –PAYMENT

- 4.01 Measurement and Payment see Section 01270.

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 – GENERAL

1.01 Summary

- A. Section Includes
 - 1. Site Clearing.
 - 2. Channel Clearing, Grubbing, and Snagging.
 - 3. Selective Clearing.
 - 4. Marketable Timber.
 - 5. Debris Management.
 - 6. Fences and Other Private Property.
- B. Related Sections
 - 1. Section 02211 – Rough Grading.
 - 2. Section 02215 – Open Drain Specifications
 - 3. Section 02222 – Excavation.
 - 4. Section 02274 – Soil Erosion and Sedimentation Control.
 - 5. Section 02923 – Landscape Grading.

1.02 Defined Terms

- A. Clearing – Cutting, dozing or other means of removing trees, logs, brush, shrubs, stumps and debris from the required work area.
- B. Grubbing – Removal of trees stumps and roots from below the ground surface.
- C. Snagging – Removal of loose debris, stumps, logs and fallen trees from an area, without disturbing the existing sodded conditions.

1.03 Scope of Work

- A. This work shall include the labor and machinery necessary for the clearing, grubbing, snagging, loading, removal and disposal of trees, stumps, brush, and all other waste material as indicated on the plans and specifications. Work also includes loading, removal and disposal of unsalvageable structures, raking of root spoils, removal of fences from within the drain right-of-way, applying herbicide, cutting stumps and other items as directed by the ENGINEER.

1.04 Regulatory Requirements

- A. Conform to applicable local, county and state standards for disposal of debris, burning debris on site and use of herbicides.
- B. Coordinate clearing work with utility companies.

PART 2 – PRODUCTS

2.01 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Herbicide:

1. Garlon 3A or approved equal shall be used on brush having diameter of inch or less.
2. 25 percent Garlon 4 or approved equal and 75 percent Ax-It basal bark oil or approved equal shall be used on all cut stumps and brush greater than 1 inch per manufacturer's specifications.
3. All herbicides shall contain a dye additive so that sprayed areas can be visually identified.
4. Applicator shall be certified.
5. Use only in locations approved by ENGINEER and with materials approved by ENGINEER and OWNER.

PART 3 – EXECUTION

3.01 Preparation

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. The CONTRACTOR shall walk the project with the ENGINEER and ICDC Staff to investigate what trees, brush, etc. must be removed.

3.02 Protection

- A. Locate, identify, and protect utilities that remain from damage.
- B. Protect survey stakes and survey monuments. If monuments, stakes or benchmarks are damaged or destroyed, CONTRACTOR will be responsible for replacement costs.
- C. Protect trees, plant growth, and features designated to remain as final landscaping.
- D. All trees outside of right-of-way shall be protected.
- E. Protect benchmarks and existing structures from damage or displacement.
- F. Do not cover burnable debris with earth or spoils.

3.03 Site Clearing

- A. Notify ENGINEER 48 hours prior to channel clearing, grubbing and snagging or applying herbicide.
- B. All dead elm and ash shall be taken down and removed.
- C. In reaches proposed for open channel excavation.
 1. CONTRACTOR shall excavate according to the plans and specifications.
 2. Clear trees, shrubs and brush as noted in the plans and according to the project details.
 3. Stumps located in proposed excavation areas **SHALL NOT** be grubbed.
 4. Stumps not located in excavation areas opposite bank in one-sided excavation areas shall be trimmed flush, no higher than 6", with ground and sprayed with herbicide.
- D. Clear area required for access to site and execution of work or as indicated on plans as approved by the ENGINEER.
- E. Snag all deadfalls and debris from project work areas and haul or otherwise manage as indicated on the plans.

3.04 Channel Clearing, Grubbing and Snagging

- A. Notify ENGINEER 48 hours prior to channel clearing, grubbing, and snagging or applying herbicide.

- B. All dead elm and ash shall be taken down and removed.
- C. In reaches proposed for channel clearing, grubbing, and snagging.
 - 1. CONTRACTOR shall not excavate.
 - 2. Grub from toe of slope to toe of slope only as directed by ENGINEER.
 - 3. Clear trees, shrubs, and brush as noted in the plans and according to the project details.
 - 4. Stumps not located in grubbing areas shall be trimmed flush, no higher than 6" with ground and sprayed with herbicide.
- D. Clear areas required for access to site and execution of work or as indicated on plans as approved by the ENGINEER.
- E. Snag all deadfalls and debris from project work areas and haul or otherwise manage as indicated on the plans.

3.05 Selective Clearing

- A. Notify ENGINEER 48 hours prior to selective clearing or applying herbicide.
- B. All dead elm and ash shall be taken down and removed.
- C. Selective clearing shall be done in such a manner that the conditions within drain right-of-way are not disturbed except by foot traffic or light machinery.
- D. Remove trees and log jams as indicated by the OWNER or the OWNER'S ENGINEER at the time of the pre-bid meeting.
- E. Stumps shall be trimmed flush, no higher than 6", with ground and sprayed with herbicide.

3.06 Marketable Timber

- A. When specified on the plans and bid as a separate item, the CONTRACTOR will be required to salvage all marketable timber in accordance with the current MDOT Standard Specifications for Construction.
- B. If timber salvage is not specified, the landowner will be given reasonable notice so that the landowner may, at their option, cut and remove the marketable timber before the clearing operation begins; otherwise, all timber will be treated as debris and disposed of as required.
- C. CONTRACTOR will obtain written approval from the landowner before removing any marketable timber from the site.

3.07 Debris Management

- A. Coordinate debris management with OWNER/ENGINEER prior to construction.
- B. CONTRACTOR shall burn, bury or remove debris from the site. Before burning, CONTRACTOR shall verify that burning is permissible and obtain the appropriate burn permits from the local agency having jurisdiction. OWNER may order that no burning take place on the project.
- C. Landowners shall have first call on all valuable timber.
- D. All burying of debris must be done in a manner to remove and replace all topsoil in the bury location.
- E. Burnable Debris
 - 1. Wooded Areas – At the option of the landowner do one of the following:

- a. Cut trees over 6" in diameter into 8-foot lengths piled a minimum 15 feet away from the top of bank of drain.
 - b. Windrow wood and brush piles along the right-of-way.
 - 2. Agricultural Areas
 - a. Windrow wood and brush piles along the right-of-way.
 - F. Non-Burnable Debris
 - 1. Wooded areas – Bury debris minimum 24" below ground level, or remove.
 - 2. Agricultural areas – Bury debris minimum 24" below ground level, or remove.
 - 3. Residential areas – Remove debris.
 - 4. Chipped materials shall be disposed of using one of the following methods:
 - a. Spread on right-of-way outside of slope to a maximum depth of 6".
 - b. Spread or piled in location specified by the landowner outside of, but within 50' of the drain right-of-way to a depth specified by the landowner.
 - c. Hauled off-site and disposed of in a manner compliant with Michigan Department of Agriculture's Emerald Ash Borer Requirements.
 - G. Remove debris, rock and extracted plant life from site.
 - 1. Agricultural Areas – Leave in a plantable condition, acceptable to the OWNER.
 - 2. A mechanical root rake must be used to remove the superficial debris.
 - 3. A chisel plow or harrow disk must be used to scarify the soil in all leveled locations.
 - 4. A mechanical root rake must be used again after the chisel plow/harrow disk operation to remove any debris.
 - 5. Hand picking of rocks and debris will be required as necessary and as directed by the OWNER.
- 3.08 Fences and Other Private Property
- A. CONTRACTOR shall notify landowners and ENGINEER of conflicts and provide reasonable cooperation and assistance.
 - B. Any structures outside of drain right-of-way shall not be disturbed. CONTRACTOR shall correct all damage outside of right-of-way at his own expense.
 - C. CONTRACTOR shall disassemble fence, etc. and stockpile off right-of-way; CONTRACTOR is responsible for reassembly unless otherwise noted in the plans. No extra payment will be made for fences, etc.
 - D. CONTRACTOR shall give the landowner three (3) days notice prior to the disassembly of any fence.

PART 4 – PAYMENT

- 4.01 Measurement and Payment see Section 01270.

END OF SECTION

SECTION 02160

EXCAVATION SUPPORT SYSTEMS

PART 1 – GENERAL

1.01 Summary

- A. Work Includes
 - 1. Excavation Support Systems.
- B. Related Sections
 - 1. Section 02211 – Rough Grading.
 - 2. Section 02222 – Excavation.
 - 3. Section 02225 – Trenching.

1.02 Regulatory Requirements

- A. Conform to applicable OSHA regulations

1.03 References

- A. ASTM A-328 – Standard Specification for Steel Sheet Piling.
- B. ASTM A-572 – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
- C. ASTM A-690 – Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorous Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments.

1.04 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Submit shop drawings and product data for all items to be installed and/or constructed within this section.
- C. Submit manufacturer's instructions for all product data.
- D. Shop drawings shall include sheeting, shoring, and bracing design and calculations prepared and sealed by a registered professional engineer.
- E. Product shall include component sizes, dimensions and finishes.

PART 2 – PRODUCTS

2.01 Materials

- A. Timber and lumber for shoring and bracing shall be new, marketable pine, Douglas fir or Spruce, unless otherwise shown or specified on the plans. Do not use secondhand timber or lumber where strength and/or appearance are important consideration.
- B. Steel for sheeting, shoring and bracing shall be as per the referenced ASTM specifications and shall be Grades 50, High Strength and Corrosion Resistant.

- C. Temporary Sheeting – Select section modulus, embedment depth and bracing required to complete the work unless noted on the plans.

PART 3 – EXECUTION

3.01 Installation

- A. The CONTRACTOR is responsible for the design and location of all sheeting, shoring and bracing.
- B. Where required to properly support the surfaces of excavations and to protect the construction work and workmen, sheeting, bracing and shoring shall be provided.
- C. If the ENGINEER is of the opinion that at any point sufficient or proper supports have not been provided, he may order additional supports at the expense of the CONTRACTOR, but neither the placing of such additional supports by the order of the ENGINEER nor the failure of the ENGINEER to order such additional supports placed shall release the CONTRACTOR from his responsibility for the sufficiency of such supports and the integrity of the work.
- D. Damage to new or existing structures occurring through settlements due to failure or lack of sheeting or bracing shall be repaired by the CONTRACTOR at his own expense.
- E. Conflict of opinion as to whether the settlement is due to the work of the CONTRACTOR or to any other cause will be determined by the ENGINEER.
- F. In general, the sheeting and bracing shall be removed, as the trench or excavation is refilled, in such a manner as to avoid the caving in of the work.
- G. Fill voids left by the withdrawal of the sheeting by ramming, or as otherwise directed.
- H. When sheeting and bracing is removed, the CONTRACTOR shall assume full responsibility for injury to structures or to other property or persons arising from failure to leave in place such sheeting or bracing.
- I. For the purpose of preventing injury to the structures, or to other property or to Persons, the CONTRACTOR shall leave in place any sheeting or bracing shown on the plans or ordered in writing by the ENGINEER. If left in place, such sheeting shall be cut off at the elevation ordered, but in general, such cutoffs shall not be less than 24” below the final ground surface.
- J. Bracing remaining in place shall be driven up tight.
- K. Sheeting and bracing ordered by ENGINEER to be left in place shall be measured and paid as extra work, unless noted otherwise.
- L. The right of the ENGINEER to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders.

PART 4 – PAYMENT

- #### **4.01 Measurement and Payment see Section 01270.**

END OF SECTION

SECTION 02211

ROUGH GRADING

PART 1 – GENERAL

1.01 Summary

- A. Work Includes
 - 1. Removal of topsoil and subsoil.
 - 2. Cutting, grading, filling, rough contouring and compacting the site to meet the requirements shown on the Plans and as specified in related sections.
- B. Related Sections
 - 1. Section 01400 – Quality Control.
 - 2. Section 02110 – Site Clearing.
 - 3. Section 02215 – Open Drain Specifications
 - 4. Section 02222 – Excavation.
 - 5. Section 02223 – Backfilling.
 - 6. Section 02225 – Trenching.
 - 7. Section 02923 – Landscape Grading.

1.02 References

- A. MDOT Density Testing and Inspection Manual, current edition.
- B. MDOT Standard Specifications for Construction, current edition

1.03 Submittals

- A. Submit under provisions of Section 01300 – Submittals
- B. Samples – Submit a 5-gallon bucket sample of each type of fill to OWNER’S testing consultant.

PART 2 – PRODUCTS

2.01 Materials

- A. Topsoil – Excavated material, graded, free of roots, rocks, subsoil, debris and large weeds.
- B. Subsoil – Excavated, re-used or imported material, graded, free of lumps larger than 6 inches, rocks larger than 3 inches and debris.
- C. Structural Fill – MDOT 6A coarse aggregate, 100 percent crushed.
- D. Granular Fill – MDOT Class II granular material.

PART 3 – EXECUTION

3.01 Examination

- A. Verify site conditions.
- B. Verify that survey benchmark and intended elevations for the work are as indicated.

- C. Verify that fill materials are acceptable.

3.02 Preparation

- A. Identify required lines, levels, contours and datum.
- B. Identify known underground, above ground and aerial utilities. Stake and flag locations.
- C. Notify utility company to remove and relocate utilities.
- D. Protect above and below grade utilities, which are to remain.
- E. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- F. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.03 Topsoil Excavation

- A. Excavate topsoil from areas to be further excavated, re-landscaped or re-graded.
- B. Stockpile in area designated on site or haul from site as designated on the plans. Remove excess topsoil not being reused, from site.
- C. Do not excavate wet topsoil.
- D. Stockpile topsoil to depth not exceeding 8 feet. Cover to protect from erosion.

3.04 Subsoil Excavation

- A. Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.
- B. Stockpile in area designated on site. Remove excess and unsuitable subsoil not being reused from site.
- C. Do not excavate and process wet subsoil to obtain optimum moisture content.
- D. Stockpile subsoil to depth not exceeding 8 feet. Cover to protect from erosion.
- E. When excavation through roots is necessary, perform work by hand and cut roots with sharp axe.

3.05 Filling

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Granular Fill – Place and compact materials in continuous layers not exceeding 6 inches compacted depth, compacted to a minimum 95 percent of maximum density.
- C. Subsoil Fill – Place and compact material in continuous layers not exceeding 12 inches compacted depth, compacted to a minimum 95 percent of maximum density.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Make grade changes gradual. Blend slope into level areas.

- F. Remove surplus and unsuitable fill materials from site.
 - G. Slope grade away from buildings and structures minimum 2 inches in 10ft, unless noted otherwise.
- 3.06 Tolerances
- A. Top Surface of Subgrade – Plus or minus 1/10 foot from required elevation.
- 3.07 Spoil Leveling
- A. As indicated on Drawings, or as directed by Engineer.
 - B. Contractor shall be responsible for loading, hauling and spreading of all excess excavated material generated from this project.
 - C. Place no excavated materials on roads without written permission of the authorities having jurisdiction of said road.
 - D. Remove excavation in areas adjacent to yards where there is not suitable place to deposit spoils and dispose of as indicated on the drawings or off site as directed by the Engineer.
 - E. Place no spoils in a watercourse or drain.
- 3.08 Schedule
- A. Fill Under Grass Areas – Subsoil native fill, to 6 inches below finish grade, compacted to minimum 90 percent of maximum density.
 - B. Fill Under Asphalt Paving – MDOT Class II fill, to subgrade elevation, compacted to minimum 95 percent of maximum density.
 - C. Fill Under Concrete Building Pads, Concrete Curb and Gutter and Sidewalks – MDOT Class II fill, to within 4” of underside of concrete slab, compacted to minimum 95 percent of maximum density.
 - D. Backfill for Utility Trenches
 - 1. Bedding as specified in individual utility specifications section.
 - 2. Backfill material as specified in Section 02225 – Trenching and as defined herein for type of fill.
 - E. Fill for Subgrade and Undercutting – MDOT Class II fill, to proposed subgrade elevation, compacted to minimum 95 percent of maximum density.
- 3.09 Field Quality Control
- A. Section 01400 – Quality Control
 - B. Testing in accordance with MDOT Density Testing and Inspection Manual, current edition.
 - C. If tests indicate WORK does not meet specified requirements, remove work, replace and retest at no cost to OWNER.
 - D. Frequency of Tests: To be determined by OWNER’S testing consultant.

PART 4 – PAYMENT

4.01 Measurement and Payment see Section 01270.

END OF SECTION

For Bid Purposes Only

SECTION 02215

OPEN DRAINS

Part 1 - GENERAL

1.01 Summary

- A. This work shall include the labor and machinery necessary for the clearing, grubbing, debris removal, excavation, restoration, seeding and any other item specific to the construction of the open drain of the size and character shown on the drawings.

1.02 Reference

- A. Related Sections
 1. Section 02110 – Site Clearing
 2. Section 02111 – Selective Tree Removal & Trimming
 3. Section 02211 – Rough Grading
 4. Section 02222 – Excavation
 5. Section 02223 – Fill
 6. Section 02225 – Trenching
 7. Section 02271 – Slope Protection and Erosion Control
 8. Section 02274 – Erosion and Sedimentation Control
 9. Section 02279 – Filter Fabric
 10. Section 02715 – Lateral Tile Drains
 11. Section 02751 – Drain Crossings
 12. Section 02936 – Seeding of Landscapes and Waterways
- B. MDOT Standard Specification for Construction, current edition.
- C. MDOT Density Testing and Inspection Manual, current edition.

Part 2 - PRODUCTS

2.01 Culverts

- A. Unless otherwise noted on the plans, all culverts shall be CSP or CSPA per the following tables:

Table 1 – Culvert Wall Thickness (MDOT Table 909-9)**Wall Thickness Requirements in Inches, Based on Class of Pipe, and Size of Corrugation**

Pipe Diameter, in.	Class A and Class B		Class C		Class D		
	Corrugation Size, in.		Corrugation Size, in.		Corrugation Size, in.		
	2 ² / ₃ x 1 ¹ / ₂	3 x 1, 5 x 1	2 ² / ₃ x 1 ¹ / ₂	3 x 1, 5 x 1	2 ² / ₃ x 1 ¹ / ₂	3 x 1	5 x 1
12-30	0.109	—	0.109	—	0.109	—	—
36-60	0.109	0.109	0.109	0.109	0.107	0.109	0.109
66-72	0.138	0.109	0.138	0.109	0.138	0.109	0.109
78-84	0.168	0.109	0.168	0.109	0.168	0.109	0.109
90-102	—	0.109	—	0.109	—	0.109	0.109
108-120	—	0.109	—	0.109	—	0.109(a)	0.109
126	—	0.138	—	0.138	—	0.138	0.138
130-136	—	0.138	—	0.138	—	0.138(a)	0.138
144	—	0.168	—	0.168	—	0.168(b)	0.168

Note: For pipe arch shape corrugated steel pipe, use the gage requirement for the circular pipe equal to or next larger than the span of the pipe arch (see Table 3 – Equivalent Sizes for Pipe Arches, this Section).

a. Increase the wall thickness by one gage for riveted or spot-welded longitudinal seams.

b. Not allowed for riveted or spot-welded longitudinal seams. Riveted or spot-welded seams will not be permitted for 5 in. by 1 in. corrugations.

Table 2 – Pipe Class Based on Depth of Cover

Pipe Class	Depth of Cover (ft)
Class A	0 – 10
Class B	10 – 16
Class C	16 – 23
Class D	23 - 33

Table 3 – Equivalent Sizes for Pipe Arches

Dia. of pipe of equal periphery (inches)	2-2/3" X 1/2" corrugations		3" X 1" corrugations	
	Span (inches)	Rise (inches)	Span (inches)	Rise (inches)
15	17	13	--	--
18	21	15	--	--
21	24	18	--	--
24	28	20	--	--
30	35	24	--	--
36	42	29		
42	50	31		
48	57	38		
54	64	43	60	46
60	71	47	66	51
66	77	52	73	55
72	83	57	81	59
78	--	--	87	63
84	--	--	95	67
90	--	--	103	71
96	--	--	112	75
102	--	--	117	79
108	--	--	128	83
114	--	--	137	87
120	--	--	142	91

- B. Unless otherwise specified, culvert wall thickness requirements shall meet Class "B"/Class 2 criteria in the current MDOT Standard Specifications for Construction.

2.02 Sand

- A. Sand, where called for in these specifications, shall be a good grade of natural bank sand or gravel which meets the requirements of the current MDOT Standard Specifications for Construction, and shall have a loss by washing of less than 10 percent by weight. All backfill material shall be approved by the Engineer.

2.03 Coarse Aggregate

- A. Coarse aggregate, where called for on the plans or in these specifications, shall be MDOT Class 6A coarse aggregate.

2.04 Plain Riprap

- A. Plain riprap, where called for on the plans or in these specifications, shall meet the requirements of the current MDOT Standard Specifications for Construction.

2.05 Heavy Riprap

- A. Heavy riprap, where called for on the plans or in these specifications, shall meet the requirements of the current MDOT Standard Specifications for Construction.

2.06 Geotextile Separator Fabric

- A. Geotextile separator fabric, where called for on the plans or in these specifications, shall meet the requirements of the current MDOT Standard Specifications for Construction.

Part 3 - INSTALLATION

3.01 Clearing and Grubbing

- A. Clearing is defined as the cutting, dozing or other means of removing trees, logs, brush, shrubs, stumps, and debris from the required work area. Grubbing is defined as the removal of tree stumps and roots from below the ground surface. Snagging is defined as the removal of loose debris, stumps, logs and fallen trees from an area without disturbing the existing sodded conditions.
- B. The Contractor will clear the required right-of-way, including spoil deposit areas, at least 1/2 mile in advance of the excavating operation. Trees 6 inches in diameter or larger may be left in the right-of-way provided they do not interfere with the construction operation.
- C. When specified on the plans and bid as a separate item, the Contractor will be required to salvage all merchantable timber in accordance with the details found in the current MDOT Standard Specifications for Construction. If timber salvage is not specified, the landowner will be given reasonable notice so that the landowner may, at their option, cut and remove the merchantable timber before the clearing operation; otherwise, all timber will be treated as debris and disposed of as required.
- D. The Contractor will obtain written approval from the land- owner before removing any merchantable timber from the site. No fruit trees will be removed unless the landowner approves. The Contractor will investigate for himself what trees and brush must be removed. When directed by the Owner, an occasional tree will be left standing unless it interferes with the construction, maintenance and/or the functioning of the drain. Wherever possible, and as directed by the Owner, trees on the West and South sides of the drain shall remain so as to act as a sun block and reduce algae growth in the drain.
- D. All brush, stumps and trees shall be cut within 6" of grade level and treated with an approved herbicide, as described hereinafter, on the drain side slopes where no excavation is required. Stumps and root system shall be left in place to provide erosion protection unless otherwise directed for removal by the Engineer.
- E. If a minimum of 12 inches of spoil cover cannot be placed be placed over all cut-off stumps, then stumps and brush are to be sprayed.
- F. Where spoil is to be deposited on one side only and access for maintenance purposes is necessary on the opposite side, the Contractor will be required to clear by cutting or grubbing a 12-foot-wide strip on the opposite side and spray stumps and small brush. If access for maintenance purposes is not necessary, the Contractor shall be required to remove from the 12-foot-wide strip only those diseased or dead trees in jeopardy of falling into the drain.
- G. Stumps will be basal sprayed, and brush will be foliage sprayed with approved herbicides. The carrier mixed with the herbicide will be in accordance with the directions of the chemical

manufacturer and will be colored with a suitable water-soluble colored dye such as DuPont's "Rhodamine".

- H. Spraying will be performed only by a properly trained and licensed sprayer. Spraying of stumps will be done as soon as possible after the cutting operation but no later than 24 hours and will be applied according to the spray manufacturer's recommendations.

3.02 Debris Management

- A. All combustible debris will be either burned or removed from the site and disposed of as approved by the Engineer. Burning will be in accordance with applicable laws regarding open fires. The Contractor is responsible for obtaining all necessary burning permits from the local controlling units of government. No burning or piling will be allowed within 200 feet of any overhead or underground public utility line. When burning is specified and areas of organic soils are encountered, the combustible debris will be either removed from the site or moved to areas of mineral soils before burning.
- B. Tree stumps packed with soil that are grubbed intact with the entire tree may be placed in burning piles provided there is sufficient other combustible material in the pile to assure a good burn. Otherwise, all non-combustible debris cut-off stumps packed with soil or the remains of any burning piles will be removed from the site.
- C. Under no circumstances shall brush and burnable debris be covered with earth excavation. Valuable trees and shrubs outside the limits of actual excavation shall be protected from damage, by the Contractor, as directed by the Engineer.

3.03 Excavating

- A. The Contractor will excavate the drain to the dimensions and cross sections specified in the plans. No change in grade or dimensions will be made without the Owner's permission. The Contractor shall closely adhere to proposed grades in reaches 300 feet below and above any bridge, culvert, or rock ford crossing. In no case shall the bottom grade be more than 0.5 feet below planned grade in these areas. Any excavations below this depth on the downstream end of culverts will be filled with approved size and type of rock as directed by the Engineer as a incidental cost to the Contractor.
- B. If unstable soils are encountered, the Contractor will ask the Engineer to specify the changes necessary to provide slope and grade stability. Any additional excavation on account of these changes will be paid for at a price agreed upon before the changes are made.
- C. Any ledge rock encountered during the excavations will be brought immediately to the attention of the Engineer, who, in consultation with the Owner, will prepare alternate plans for the reach involved. Use of explosives will require special approvals and additional insurance coverage.

3.04 Pilot Channels

- A. When called for on the plans or when wet or unstable soils are encountered, the initial construction of the drain will be the excavation of a pilot channel to be excavated at least 30 days in advance of completing final drain side slopes. The Engineer will determine when drain slopes have stabilized sufficiently to allow for final slope shading.
- B. The pilot channel will have a bottom width of approximately one-half the proposed final width (minimum 4 feet), 1:1 H:V side slopes and be excavated to the proposed design grade. The pilot channel will not be excavated upstream from any bridge requiring bridge protection

work or replacement until the scheduled work for such bridge has been completed, unless otherwise approved by the Engineer.

3.05 Sedimentation Basins & Sediment Traps

- A. The Contractor shall construct sedimentation basins at the locations shown on the plans by over-excavating the drain bottom 1.5 feet deeper. Construction shall be as shown on the Standard Details.
- B. Maintenance cleanout of the sumps shall be required if the sumps become filled during the construction operation. After all construction has been completed, the barrier on each sump shall be removed and disposed of.

3.06 Channels Parallel to Roads

- A. Unless the plans require the drain to be set back from the road, all excavations will be made from the slope on the field side of the drain. On the undisturbed slope adjacent to the road, the Contractor will handle trees and brush as specified in the section of these specifications entitled "Cleaning and Grubbing."
- B. When the existing roadside ditch is to be abandoned and filled, select materials from the excavations will be used as fill and carefully compacted in place with suitable equipment.
- C. At the option of the county road commission and if right-of-way allows, spoil may be ordered placed on the opposite side of the road and leveled. In some cases, the road itself may be raised.
- D. Where farm outlet roads occur along the side of the drain, spoil may be placed on the opposite side of the farm road and leveled in a manner to save existing travel surfaces.

3.07 Openings Through Spoil

- A. No spoil will be deposited in an existing tributary watercourse or drain. Openings will be left or made through the leveled spoil at places where the general ground surface indicates an opening is necessary for the passage of surface water to the drain.

3.08 Grade-Outs

- A. Grade-outs shall be constructed at all road and side ditch outlets unless otherwise specified. Grade-out construction shall begin at a point on the side slope of the proposed drain 6" above the proposed flow line. A uniform grade shall be excavated from the proposed drain to a point in the existing side ditch at the limits of the right-of-way. Side slopes shall be constructed at a ratio of 2-foot horizontal to 1-foot vertical. Grade-outs shall be seeded according to the Ditch Bank Seeding specifications.

3.09 Spoil Leveling

- A. Normally, except for minor cleanouts, or unless otherwise directed by the Owner, spoil material will be equally placed on each side of the drain. In reaches where spoil was placed all on one side the last time the drain was excavated, the newly excavated spoil shall be placed on the opposite side. The Contractor shall coordinate this with the landowners. In case of landowner disagreements concerning which side that spoil should be placed, the Owner shall decide. All old or newly excavated spoil deposited on or adjacent to improved or tillable farmland will be leveled as specified in the standard details. In reaches where only clearing

and snagging is to be done, old spoil banks shall be cleared and leveled as is necessary to facilitate the overall operation.

- B. Leveling will be done with suitable equipment in order that the landowner can work or till the spoil with normal farm equipment. The spoil will be uniformly sloped away from the channel. In wooded areas, old and new spoil banks will be piled, leveled, and left in a condition suitable for travel by farm equipment.
- C. Unless otherwise specified, when spoil is to be deposited on unstable organic soils, always maintain a berm 15 feet wide between the top edge of the drain and the excavated spoil at during construction.
- D. Combustible brush or debris must never be mixed in with leveled spoil materials. A minimum of 12 inches of cover will be placed over any cut-off stumps.
- E. Special attention will be given to prevent the trapping of water behind the leveled spoil. In such cases, extra shaping of the spoil and the area behind it may be necessary.
- F. No dike construction or earth shall be placed within 3 feet of any excavation. Spoil from that portion of the drain adjacent to landscaped areas, where there is no suitable place to deposit the spoil, will be deposited on adjacent un-landscaped areas of right-of-way or will be hauled away and disposed of as directed by the Owner.

3.10 Culverts

- A. New culverts or culverts to be re-laid will be placed by the Contractor as directed by the Engineer according to the Standard Details and in accordance with the requirements of the highway agency having jurisdiction. The Contractor shall determine what the requirements of the agency are for permits, insurance, bonds, barricading, backfilling, and financial responsibility for imposed inspection fees, surface replacement or any other special requirements. Requirements of this section will also apply to the installation of CSP for erosion control structures.
- B. Special care will be taken in removing, salvaging, storing, handling, or placing new culverts or culverts to be relayed so that they are not dented, scraped or the galvanized coating otherwise damaged. When placing larger diameter or longer length culverts, suitable lift rings will be shop attached to facilitate handling. Lift holes cut in the CSP will not be allowed. Saw cut ends of the CSP shall be reasonably free from excessive jagged burrs or sharp spurs. The Contractor shall promptly repair any damaged coatings in accordance with the manufacturer's recommendations.
- C. Unless otherwise noted, all existing CSP shown in the plans are assumed to be the standard corrugations. When existing culverts are to be extended, the Contractor shall, before ordering the new CSP extensions, field check the existing culvert to determine the exact size and type so that the new extension will be compatible and properly joined together. Any special banding techniques proposed by the Contractor shall have the prior approval of the Engineer.
- D. CSP will be laid with the outside laps of circumferential joints pointing upstream and with longitudinal laps at the sides at about the vertical mid-height of the culvert. When existing round culverts are to be relayed, the inverts shall be rotated 180 degrees.
- E. The CSP sections will be joined with annular corrugated coupling bands, that are no more than 2 nominal sheet thicknesses lighter than the thickness of the pipe to be connected or no lighter than 0.064 in. The standard band shall be not less than 7 inches wide for pipe diameters 18" or less, 12 inches wide for pipe diameters from 21" through 60", and 24 inches wide for pipe diameters greater than 60". Special coupling bands such as the "HUGGER"

type or those used on rerolled ends shall have widths generally corresponding to the above range variations. When joining sections of helical pipe, the ends of the joined sections shall be either rerolled to an annular configuration to receive the standard or hugger type bands or a special flanged band will be used. Dimpled type bands will not be allowed nor will the use of annular or helical bands on helical pipe without prior written approval of the Engineer. All helical CSP to be used on public road crossings shall have both outer ends re-rolled to an annular configuration to allow for future extensions. Unless otherwise approved by the Engineer, all CSP shall be supplied with maximum lengths of 42 feet to facilitate re-laying culverts in the future.

- F. In all cases, sufficient spacing will be left to allow room to thoroughly tamp the backfill under and around the culvert. Smooth transitions shall be excavated on the drain bottom width and side slopes upstream and downstream from culvert installations involving larger diameters or multiples.
- G. All culverts will be placed on a stable earth or granular foundation, free of all sod, frozen earth, boulders, or rocks. The trench or streambed will be shaped to fit the bottom of the culvert to line and grade.
- H. Select backfill material will be placed under the haunches, around the culvert and over top of the culvert in alternate 6-inch layers on both sides of the culvert. Thorough tamping of each layer of backfill material will be accomplished by use of a vibrating compactor, hand tamping or mechanical tamping equipment, depending on field conditions.
- I. Construction equipment will not be allowed to cross the culvert until it is completely backfilled and compacted up to finish road elevation. Backfilling methods will conform to the current MDOT Standard Specifications for Construction. The Contractor will refill all backfilled areas which settle before final acceptance.
- J. Unless otherwise specified, backfill over all culverts will be of sufficient depth to provide a minimum of 12 inches of cover for equivalent pipe sizes up to and including 84", 18 inches for equivalent pipe sizes to and including 102", and 24 inches for 108" and larger. The backfill shall be crowned and shaped to divert surface water runoff to prevent erosion over the end slopes. Backfill top widths and end slopes will be as specified in the construction notes on the Standard Details.
- K. Road or street surfaces will be restored according to the requirements of the highway agency having jurisdiction. All cuts on concrete or asphalt pavements shall be neat straight cuts by either a saw or other suitable device. Existing paved residential or access driveways will be restored to the new equivalent of the original condition. Unpaved residential, access driveways or farm crossings will have a 6-inch processed gravel surface placed on them. Approaches to the crossings will not be steeper than a 10:1 slope.
- L. Culvert end slope shall be extended to create a slope of 2H:1V. End slope shall be covered with riprap as an end treatment.
- M. Culvert ends will be either projecting or mitered to a 2H:1V end slope,

3.11 Rock Fords

- A. Rock ford crossings shall be located as noted on the plans and/or as directed by the Engineer. Field adjustments to the location shall be made by the Engineer when, during the excavation operation, unstable soils are encountered at the planned location.
- B. Rock ford ramps shall be no steeper than 8H:1V. The sides of the ramp shall be sloped at 1.5H:1V unless otherwise specified. Upon completion, all exposed earth surfaces of the rock ford shall be stabilized, fertilized, and seeded.

- C. The rock ford shall be constructed of MDOT Class 4AA coarse aggregate in accordance with the details included in the plans. The ramps shall be surfaced with a thickness of 12 inches of coarse aggregate. The bottom, level portion of the rock ford in the drain channel shall be 24 inches thick.
 - D. Rock fords shall be bid and paid for on a lump sum basis. Such lump sum shall include all excavation, labor, and materials necessary in the performance of the work to construct the rock ford.
- 3.12 Culvert Cleanout
- A. The Contractor shall clean out all existing culverts that are to be left in place.
- 3.13 Side Culvert Outlet Protection
- A. Riprap shall begin at a depth of 6 inches below the flow line of the drain and be extended, with a batter of 1- on-2 on the face, up to a height of 2 feet above the top of the culvert. The riprap shall extend 2 feet beyond the side of the culvert on each side. Filter fabric, as specified above, shall be used behind riprap. Payment for material and installation of filter fabric shall be included in the bid price for bag riprap.
- 3.14 Removal of Miscellaneous Debris
- A. The Contractor shall remove from the job site all broken pipe and debris, along the line of work, not incorporated in the final project, except as hereinafter specified.
- 3.15 Soil Erosion and Sedimentation Control Act
- A. During the life of the project, the Contractor shall conform to Part 91 of Act 451 of 1994, relative to the Soil Erosion and Sedimentation Control Act.
- 3.16 Tile Outlets
- A. With a minimum of 3 days' notice to be given by the Contractor, landowners will locate and flag the location of all known tile outlets to be protected during the excavating operation. The Contractor will be responsible for leaving the tile outlets in good repair and in working order.
 - B. Where the drain is widened, tile outlets shall be cut off so as not to extend more than 1' into the drain, as measured horizontally along the bottom of the tile. Existing rodent guards shall be replaced.
 - C. When called for on the plans, new CSP tile outlets will be installed according to the Standard Details. The new CSP may be the same size as the existing tile outlet provided an additional 1% slope can be obtained on the new CSP, otherwise the size of the new CSP will be increased by one pipe size.
 - D. Interior lap seams on the new CSP will be placed in the direction of water flow. A suitable rodent guard shall be placed on the end of the new tile outlet.
 - E. When it is apparent a tile outlet is carrying human or animal waste materials from a home or barnyard area, county health department approval will be requested before re- connecting the outlet to the drain.

3.17 Existing Shrubs, Lawns and Construction Area

- A. All shrubs and lawn areas that are destroyed shall be replaced. The Contractor shall place a minimum of 3 inches of topsoil over the construction area. This area shall be fertilized and seeded to match the existing lawn or as directed by the Engineer. Any sod area destroyed shall be replaced with sod matching the existing sod. This work shall be considered incidental to the project.

3.18 Mailboxes

- A. The Contractor shall remove and replace all existing mailboxes. Where necessary, the Contractor shall provide a temporary location until such time as the mailboxes can be returned to their original location.

3.19 Underground Utilities

- A. Before any excavation occurs, it shall be the responsibility of the Contractor to see that location stakes are visible at the site which shall either designate the location of the underground utility or service or indicate "NO UTILITY."
- B. The Contractor shall expose underground utilities and/or services by hand excavation across the proposed trench width. Wherever piping is exposed, the Contractor shall support the pipe in accordance with utility's minimum standard and then backfill over the top of the pipe with sand.
- C. The Contractor shall notify the utility company at least 48 hours in advance of any construction operations.

3.20 Safety Regulations

- A. The Contractor and subcontractors shall comply with the Safety Rules and Regulations of the Associated General Contractors of America, the Occupational Safety and Health Standards of the Federal Government and the General Safety Rules and Regulations for the Construction Industry, State of Michigan, Department of Labor, for the protection of workmen on this project.
- B. All equipment and work shall conform to the requirements of the Occupational Safety and Health Act and Michigan Department of Labor Occupational Safety Standards, as amended.

3.21 Drain Side Slope Seeding

- A. The Contractor shall apply seed and fertilizer to side slopes daily as construction progresses, except that no seeding shall be done within October 10 and May 1.
- B. Seed and fertilizer shall be worked into soil by pulling a light spike-tooth drag with tines turned backward along seeded surface.
- C. Seeds shall be a uniform mixture and placed at a uniform rate (see Section 02936 "Seeding of Landscapes and Waterways" and drawings for type and application rate).
- D. Commercial fertilizer shall be granular and applied at a uniform rate (see Section 02936 "Seeding of Landscapes and Waterways" and drawings for type and application rate). Upon request, the Contractor shall provide proof of purchase of said fertilizer.

3.22 Re-seeding Drain Side Slopes

- A. On certain critical side slopes, where initial seeding did not produce an adequate growth of new grass, the Contractor shall fertilize and re-seed the area affected. Areas to be re-seeded shall be determined by the Engineer. Eroded areas shall be repaired prior to re-seeding.
- B. Under the terms of the bid item for re-seeding, up to 20% of the total seeded area may be required to be re-seeded. If re-seeding is necessary on areas in excess of 20% of the total area, a written Change Order will be processed to cover the additional cost involved. If it should be determined that re-seeding is necessary on less than 20% of the total area, the value of the contract will be reduced accordingly.

3.23 Spoil Bank Seeding

- A. Except in agricultural areas that are actively farmed, the Contractor shall seed spoil material on each side of the drain immediately after leveling, except that no seeding shall be done between October 10 and May 1. The Contractor shall guarantee a moderately uniform growth of vegetation cover on all spoil banks.

3.24 Bank Protection

- A. The Contractor shall furnish and install cobblestone, plain riprap or heavy riprap bank protection in areas where erosion of the bank will most likely occur, such as side ditch outlets, field swale runoff, channel curves or deflection points, culvert end slopes and slope failures. Slope protection shall be located as noted on the plans and as directed by the Engineer.
- B. The cobblestone, plain riprap or heavy riprap shall be placed on geotextile separator fabric in accordance with the details shown in the plans.
- C. The cobblestone, plain riprap or heavy riprap shall be placed in accordance with the MDOT Standard Specifications for Construction.
 - 1. In addition, the cobblestone, plain riprap, or heavy riprap shall be laid on the bank of the drain with the longest dimension parallel with the direction of the runoff. After the stones are in place, they shall be tamped until they are firmly bedded, and the surface is true and uniform.

3.25 Final Acceptance

- A. Final inspection surveys and reports will be initiated on open drain projects only after all items of work have been completed by the Contractor in minimum reaches. (Depending upon the time of year, possible exceptions might be burning and seeding.) The minimum reach considered for final acceptance at any time will be one mile
- B. If it is found that the slopes have failed or that washout sediments have accumulated in the reach being inspected between the time of initial excavation and final inspection, the Contractor will be required at the Contractor's own expense to repair or re-excavate the drain to the grades as shown on the plans. The Contractor will give the Engineer advance notice of the approximate dates the Contractor proposes to have a minimum reach ready for final acceptance.

Part 4 - PAYMENT

4.01 Measurement and Payment see Section 01270.

END OF SECTION

For Bid Purposes Only

SECTION 02222

EXCAVATION

PART 1 – GENERAL

1.01 Summary

- A. Section Includes
 - 1. Pilot Channel Excavation.
 - 2. Open Channel Excavation.
 - 3. Channel Reshaping.
 - 4. Channel Parallel to Roads.
 - 5. Spoil Leveling.
 - 6. Riffle and Pool Construction
 - 7. Subgrade Undercutting and Backfilling.
 - 8. Channel Excavation and Sediment Removal.
 - 9. Detention Area.
- B. Related Sections
 - 1. Section 01012 – Staking and Inspection Services.
 - 2. Section 01310 – Construction Progress Schedule.
 - 3. Section 02110 – Site Clearing.
 - 4. Section 02211 – Rough Grading.
 - 5. Section 02215 – Open Drains.
 - 6. Section 02223 – Backfilling.
 - 7. Section 02225 - Trenching
 - 8. Section 02751 – Drain Crossings.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

3.01 Preparation

- A. Notify ENGINEER in accordance with Section 01200 – Project Meetings.
- B. Identify required lines, levels, contours, and datum.
- C. Identify known underground, above ground, and aerial utilities, stake and flag locations.
- D. Notify utility company when specified to remove and relocate utilities.
- E. Protect above and below grade utilities.
- F. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- G. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.
- H. Protect grade and slope stakes.
- I. No deposition of spoil on identified tree root zones.

3.02 Pilot Channel Excavation

- A. Notify ENGINEER 48 hours prior to pilot channel excavation
- B. Clear site in accordance with Section 02110 – Site Clearing.
- C. Excavate pilot channel to the dimensions specified on plans.
- D. Limits of the pilot channel to be coordinated prior to construction with the ENGINEER.
- E. Remove necessary sediment from existing culverts in order to provide upstream dewatering.

3.03 Open Channel Excavation

- A. Clear site in accordance with Section 02110 – Site Clearing.
- B. Excavate drain to the dimensions and cross sections specified on plans.
- C. CONTRACTOR shall check flow line elevations every 100 feet (ENGINEER will provide grade stakes). Undercutting of 0.3 feet or greater will be filled with coarse aggregate (MDOT 6A) to the proposed flow line as incidental cost to the CONTRACTOR.
- D. CONTRACTOR shall remove all sediment from existing culverts.
- E. Underpin, brace, or shore adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- F. Machine slope banks to required slopes.
- G. Notify ENGINEER of unexpected subsurface conditions and discontinue work in the affected until notified to resume work.
- H. Correct unauthorized excavation at no extra cost to OWNER.
- I. Rake, seed, and mulch all disturbed areas daily in accordance with Section 02936 – Seeding.
- J. Repair and replace field tile outlets as directed by ENGINEER and in accordance with Section 02715 – Lateral Tile Drains.
- K. Match existing side slopes in reaches identified for channel cleanout.
- L. Excess spoils on roadsides and lawn areas are to be hauled away.
- M. Excavation should be coordinated with the ENGINEER in areas of Pilot Channel Excavation. Open Channel Excavation shall not begin until dewatering is adequate and has been approved by the ENGINEER.

3.04 Channel Reshaping

- A. Channel shall be excavated to the dimensions and cross sections specified on the plans and as directed by the ENGINEER.
- B. Notify the ENGINEER of unexpected conditions and discontinue work in area until notified to resume work.

- C. Match existing side slopes to minimize disturbance as specified on the plans or as directed by the ENGINEER.
- D. Correct unauthorized excavation at no extra cost to OWNER.
- E. Field tile outlets shall extend into the proposed channel as specified on the plans, as directed by the ENGINEER, and in accordance with Section 02715 – Lateral Tile Drains. Tile extending into the channel more than 6” shall be cut back and splash pad installed.

3.05 Channel Parallel to Roads

- A. Unless the plans require the drain to be set back from a road, all excavations will be made from the slope on the field side of the drain.
- B. On the undisturbed slope adjacent to a road, the CONTRACTOR will handle trees and brush as specified in Section 02110 – Site Clearing.
- C. Where farm outlet roads occur along the side of the drain, spoil may be placed on the opposite side of a farm road and leveled in a manner to save existing travel surfaces.

3.06 Spoil Leveling

- A. Spoils in wooded areas shall be placed according to the plan details or as directed by the landowner. Permission from the landowner shall be granted utilizing the Landowner Agreement Form.
- B. Spoils in agricultural areas shall be spread as agreed upon by the landowner. Spoils spread on tillable land shall be evenly spread, raked, hand-picked of sticks and stones, and all foreign debris otherwise removed. Permission from the landowner to work outside the easement area shall be granted utilizing the Landowner Agreement Form.
- C. Seed spoils in accordance with Section 02936 – Seeding.
- D. It is preferred that the spoils shall be placed and leveled near the edge of the drain right-of-way. Where this is not possible, spoils are to be kept a minimum 10 feet from excavation area.
- E. No excavated materials shall be placed on roads without written permission of the authorities having jurisdiction of said road.
- F. At the option of the road authority and if right-of-way allows, spoil may be ordered placed on the opposite side of the road and leveled.
- G. Spoils excavated in areas adjacent to residential or lawn areas are to be removed from the area unless directed by the ENGINEER, shown on plans, or CONTRACTOR receives written permission from landowner to level in area.
- H. No spoils are to be placed in any watercourse, drain, or wetland area.
- I. Openings will be left or made through the leveled spoil at places where the general ground surface indicates an opening is necessary for passage of surface water to the drain.
- J. Side grade outs for watercourse and ditches shall be done at the time of open drain excavation or channel cleanout.
- K. Non-combustible items (i.e. roots and stumps), brush, or debris shall not be mixed with leveled spoil material.

- L. Shape leveled spoils to prevent the ponding of water behind spoils piles.
- M. Level spoils on the same side of the drain which excavation occurs. If excavation occurs from both sides of drain then make even spoil piles on both sides of drain unless otherwise directed by the ENGINEER.
- N. In agricultural, lawn, landscaped, or otherwise developed areas, root rake and hand pick sticks and rocks so that all foreign debris is removed. Spoils must be in a plantable condition and acceptable to the landowner.
- O. Prior to completion, all spoil piles must be raked to remove wood and rocks.
- P. Place 4 inches of topsoil on spoil piles in which the native excavated material is not suitable for establishing vegetation as determined by the ENGINEER.

3.07 Riffle and Pool Construction

- A. Clear site in accordance with Section 02110 – Site Clearing.
- B. Excavate or place material to achieve proposed dimensions and cross sections specified on plans.
- C. CONTRACTOR shall check flow line elevations every 100 feet (ENGINEER will provide grade stakes). Undercutting of 0.3 feet or greater will be filled with coarse aggregate (MDOT 6A) to the proposed flow line as incidental cost to the CONTRACTOR.
- D. CONTRACTOR shall remove all sediment from existing culverts and intakes.
- E. Underpin, brace, or shore adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- F. Machine slope banks to required slopes.
- G. Notify ENGINEER of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- H. Correct unauthorized excavation at no extra cost to OWNER.
- I. Rake, seed, and mulch all disturbed areas daily in accordance with Section 02936 – Seeding.
- J. Repair and replace field tile outlets as directed by ENGINEER and in accordance with Section 02715 – Lateral Tile Drains.
- K. Match existing side slopes in reaches identified channel cleanout.
- L. Excess spoils are to be hauled away as detailed on the plans.
- M. In muck area construct pilot channels to dewater spoils based on field conditions. Cost included in open channel excavation.

3.08 Subgrade Undercutting and Backfilling

- A. In areas that are suspect and may require subgrade undercutting, notify ENGINEER immediately. Do not proceed until it is agreed that subgrade undercutting is required and quantities can be documented.
- B. Remove the subgrade undercut quantity of material as determined adequate by ENGINEER.

- C. Backfill with coarse aggregate (MDOT 6A) for work under structures, crossings, etc. all work shall be according to the plans and directed by the ENGINEER.

3.09 Channel Excavation and Sediment Removal

- A. Excavate drain to the dimensions and cross sections specified on plans.
- B. Underpin, brace, or shore adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- C. Notify ENGINEER of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Correct unauthorized excavation at no extra cost to OWNER.
- E. Excavation should be coordinated with the ENGINEER in areas of Pilot Channel excavation. Excavation/Sediment Removal shall not begin until dewatering is adequate and has been approved by the ENGINEER.

3.10 Field Quality Control

- A. Section 01400 – Quality Control.
- B. Provide for visual inspection and surveying of excavation surfaces.
- C. Final compliance with elevation and location requirements will be reviewed by the ENGINEER.

3.11 Protection

- A. Prevent cave-in or loose soil from falling into excavation by appropriate methods.

PART 4 – PAYMENT

- 4.01 Measurement and Payment see Section 01270.

END OF SECTION

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SECTION 02223

BACKFILL

PART 1 – GENERAL

1.01 Summary

A. Section Includes

1. Backfilling building perimeter to subgrade elevations.
2. Backfilling site structures to subgrade elevations.
3. Fill under slabs-on-grade.
4. Fill under paving.
5. Fill for over-excavation.

B. Related Sections

1. Section 02211 – Rough Grading.
2. Section 02222 – Excavation.
3. Section 02225 – Trenching.
4. Section 02923 – Landscape Grading.
5. Section 02635 – Storm Drains.
6. Section 02636 – Drainage Structures.

1.02 References

- A. MDOT Standard Specification for Construction, current edition.
- B. MDOT Density Testing and Inspection Manual, current edition.

1.03 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Submit product data for geotextile fabric indicating fabric and construction.
- C. Submit a 5-lb. sample in airtight containers of each type of fill to the OWNER'S testing consultant.
- D. Materials Source: Submit name of imported fill materials suppliers.

1.04 Quality Assurance

- A. Perform Work in accordance with MDOT Standard Specifications for Construction.
- B. Maintain one copy of each document on site.

PART 2 – PRODUCTS

2.01 Fill Materials

- A. MDOT Class II granular material - for dry excavation, compacted to 95 percent of maximum density.
- B. Acceptable Native Subsoil: Reused, free of gravel larger than 3 inch size, and debris, compacted to 95 percent of maximum density.

PART 3 – EXECUTION

3.01 Examination

- A. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- B. Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.
- C. Verify structural ability of unsupported walls to support loads imposed by fill.

3.02 Preparation

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with compacted MDOT Class II. Fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Proof roll to identify soft spots. Fill and compact to density equal to or greater than requirements for subsequent fill material.

3.03 Backfilling

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact in accordance with schedule at end of this section.
- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- H. Slope grade away from building minimum 2 inches in 10 ft., unless noted otherwise.
- I. Make gradual grade changes. Blend slope into level areas.
- J. Remove surplus backfill materials from site.
- K. Leave fill material stockpile areas free of excess fill materials.

3.04 Tolerances

- A. Top Surface of Backfilling within Building Areas: Plus or minus ¼ inch from required elevations.
- B. Top Surface of Backfilling under Paved Areas: Plus or minus ½ inch from required elevations.

3.05 Field Quality Control

- A. Field inspection and testing will be performed under provisions of Section 01400 – Quality Control.

- B. Tests and analysis of fill material will be performed in accordance with MDOT Standard Requirements and with Section 01400.
- C. Compaction testing will be performed in accordance with MDOT Standard Requirements and with Section 01400.
- D. If tests indicate that the Work does not meet specified requirements, remove Work, replace and retest at no cost to OWNER.
- E. Frequency of Tests: As directed by the ENGINEER and OWNER'S testing consultant.
- F. Proof roll compacted fill surfaces under paving.

3.06 Protection of Finished Work

- A. Protect finished Work under provisions of Section 01500 – Construction Facilities and Temporary Controls and Section 01700 – Contract Closeout.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.07 Schedule

- A. Fill under Grass Areas: Acceptable native subsoil (re-used, free of gravel larger than 3-inch size and debris), to 4 inches below finish grade, compacted to 95 percent maximum dry density.
- B. Fill under Landscaped Curb Island Areas: Acceptable native subsoil (re-used, free of gravel larger than 3-inch size and debris), to 4 inches below finish grade, compacted to 95 percent maximum dry density.
- C. Fill Under Asphalt Paving: MDOT Class II material, to underside of sand subbase, compacted to 95 percent maximum dry density.
- D. Fill under Concrete Curb and Gutter and Sidewalks: MDOT Class II material, to underside of sand subbase. All fill to be compacted to 95 percent maximum dry density.
- E. Backfill for Utility Trenches: Bedding as specified in individual utility specification section. Backfill material as specified in Section 02225 - Trenching and as defined herein for typed fill.
- F. Fill for Subgrade and Undercutting: MDOT Class II material to proposed subgrade elevation, compacted to 95 percent maximum dry density.

PART 4 – PAYMENT

- 4.01 Measurement and Payment see Section 01270.

END OF SECTION

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SECTION 02225

TRENCHING

PART 1 – GENERAL

1.01 Summary

A. Section Includes

1. Excavating trenches for utilities within municipal right-of-way or easement.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

B. Related Sections

1. Section 02160 – Excavation Support Systems.
2. Section 02211 – Rough Grading: Topsoil and subsoil excavation.
3. Section 02222 – Excavation
4. Section 02223 – Backfill: General Backfilling
5. Section 02635 – Storm Drains
6. Section 02636 – Drainage Structures

1.02 References

- A. MDOT Standard Specification for Construction, current edition.
- B. MDOT Density Testing and Inspection Manual, current edition.

1.03 Regulatory Requirements

- A. Conform to applicable OSHA regulations.

1.04 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Excavation Protection Plan – See Section 02160 – Excavation Support Systems.
- C. Submit product data for geotextile fabric indicating fabric and construction.
- D. Submit a 5-lb. sample in airtight containers of each type of fill to the OWNER'S testing consultant.
- E. Materials Source: Submit name of imported fill materials suppliers.
- F. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.05 Quality Assurance

- A. Perform Work in accordance with applicable standards.

1.06 Qualifications

- A. Prepare excavation protection plan under direct supervision of Professional ENGINEER experienced in design of this Work and licensed in State of Michigan.

1.07 Field Measurements

- A. Verify field measurements prior to fabrication.

1.08 Coordination

- A. Coordinate work under provisions of Section 01200 – Project Meetings and Section 01310 – Construction Progress Schedule.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 – PRODUCTS

2.01 Fill Materials

- A. Subsoil Fill: MDOT Class II granular material compacted to 95 percent of maximum density.
- B. Structural Fill: MDOT 6A coarse aggregate, 100 percent crushed.
- C. Granular Fill: MDOT Class II granular material.
- D. Concrete: Structural concrete with compressive strength of 3,500 psi or flowable fill if approved by ENGINEER.

2.02 Excavation Support Materials

- A. Timber and lumber for shoring and bracing shall be new, merchantable pine, Douglas Fir or Spruce, unless otherwise shown or specified. Secondhand timber or lumber shall not be used where strength and/or appearance are important considerations.
- B. Steel for sheeting, shoring, and bracing shall be as per the referenced ASTM specifications.
- C. Temporary Sheeting: Select section modulus, embedment depth and bracing required to complete the work.

PART 3 – EXECUTION

3.01 Lines and Grades

- A. Lay pipes to lines and grades indicated on Drawings. ENGINEER and OWNER reserve right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.02 Preparation

- A. Call MISS DIG not less than three working days before performing Work. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.

- D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control and detours when performing trenching in public right-of-way.
- G. Relocate controls and reroute traffic as required during progress of Work.

3.03 Trenching

- A. Excavate subsoil required for utilities as shown on the plan, and as stated in the proposal.
- B. Excavate subsoil for utility piping and accessories as indicated on the drawings.
- C. Excavate on the required line to the depth required below the pipe grade for bedding thickness required.
- D. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard, measured by volume. Remove larger material as specified in Section 31 23 18.
- E. Do not advance open trench more than one pipe length ahead of installed pipe.
- F. Cut trenches to width indicated on Drawings. Remove water or materials that interfere with Work.
- G. Excavate bottom of trenches in accordance with trench details or specifications.
- H. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities being installed.
- I. Excavate trench widths exceed the maximum specified above, the OWNER'S representative may require special bedding or the use of extra strength pipe at the CONTRACTOR'S expense.
- J. Do not interfere with 45 degree bearing splay of foundations.
- K. When Project conditions permit, slope sidewalls of excavation starting at 1 foot above the top of pipe. When sidewalls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- L. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by ENGINEER until suitable material is encountered.
- M. Cut out soft areas of subgrade not capable of compaction in place. Backfill with MDOT 6A coarse aggregate (100 percent crushed) and compact to density equal to or greater than requirements for subsequent backfill material.
- N. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- O. Correct areas over excavations with compacted backfill as specified or replace with fill concrete as directed by ENGINEER.
- P. Remove excess subsoil not intended for reuse, from site.
- Q. Grade top perimeter of excavation to prevent surface water from draining into excavation.

- R. Notify OWNER'S representative of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- S. Protect excavation by methods required to prevent cave-in or loose soil from failing into excavation.
- T. Provide, operate, and maintain pumping equipment to keep trench free of water.
- U. Use trench boxes or other form of temporary protection when required by OSHA or necessary to protect existing utilities.
- V. Stockpile excavated material in area designated on site.

3.04 Sheeting and Shoring

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. The CONTRACTOR is responsible for the design and location of all sheeting, shoring, and bracing.
- E. When required to properly support the surfaces of excavations and to protect the construction work and workmen, sheeting, bracing and shoring shall be provided.
- F. If the OWNER'S representative is of the opinion that at any point sufficient or proper supports have not been provided, he may order additional supports at the expense of the CONTRACTOR, but neither the placing of such additional supports by the order of the OWNER'S representative nor the failure of the OWNER'S representative to order such additional supports placed shall release the CONTRACTOR from his responsibility for the sufficiency of such supports and the integrity of the work.
- G. Damage to new or existing structures occurring through settlements due to failure or lack of sheeting or bracing shall be repaired by the CONTRACTOR at his own expense.
- H. Conflict of opinion as to whether the settlement is due to the work of the CONTRACTOR or to any other cause will be determined by the OWNER'S representative.
- I. In general, the sheeting and bracing shall be removed, as the trench or excavation is refilled, in such a manner as to avoid the caving in of the work.
- J. Fill voids left by the withdrawal of the sheeting by ramming, or otherwise as directed.
- K. Obtain permission of the OWNER'S representative prior to the removal of any shoring, sheeting or bracing.
- L. When sheeting and bracing is removed, the CONTRACTOR shall assume full responsibility for injury to structures or to other property or persons arising from failure to leave in place such sheeting or bracing.
- M. For the purpose of preventing injury to the structures, or to other property or to persons, the CONTRACTOR shall leave in place any sheeting or bracing shown on the plans or ordered in writing by the OWNER'S representative.
- N. Cutoff sheeting left in place at the elevation ordered but not be less than 18" below the final ground surface.

- O. Bracing remaining in place shall be driven up tight.
- P. Measurements and payment for sheeting and bracing ordered left in place will be made as extra work, unless noted otherwise.
- Q. The right of the OWNER'S representative to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders.
- R. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- S. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.05 Backfilling

- A. Verify all materials to be re-used are acceptable.
- B. Backfill trenches to proposed contours and elevations with unfrozen fill materials.
- C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- D. Place geotextile fabric over coarse aggregate fill prior to placing subsequent fill materials.
- E. Place material in continuous layers as follows:
 - 1. Subsoil Fill: Maximum 8 inches compacted depth.
 - 2. Structural Fill: Maximum 6 inches compacted depth.
 - 3. Granular Fill: Maximum 8 inches compacted depth.
- F. Employ placement method that does not disturb or damage, utilities in trench, pavement, sidewalk, and driveways.
- G. Maintain optimum moisture content of fill materials to attain required compaction density.
- H. Do not leave more than 20 feet of trench open at end of working day.
- I. Protect open trench to prevent danger to OWNER.
- J. Backfill against supported foundation walls.
- K. Make grade changes gradual. Blend slope into level areas.
- L. Slope fill away from structures a minimum 2 inches in 10 feet.
- M. Leave fill material stockpile areas completely free of excess fill materials.
- N. Employ a compaction method for trench backfill that does not disturb or damage installed utilities and existing utilities in the trench. Compact backfill to specified density. If required compaction is not achieved and verified using mechanical methods, settling or spiking the trench with water may be used as a compaction method in conformance with ASTM C13 and D2321, as approved by the ENGINEER.
- O. Backfill simultaneously around all sides of structures, manholes and catch basins.

3.06 Tolerances

- A. Top Surface of Backfilling under Paved Areas: Plus or minus 1/2 inch from required elevations.
- B. Top surface of fill for building pads plus or minus 1/4 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.07 Field Quality Control

- A. Field inspection and testing will be performed under provisions of Section 01400 – Quality Control.
- B. Tests and analysis of fill material will be performed in accordance with MDOT Standard Requirements and with Section 01400.
- C. Compaction testing will be performed in accordance with MDOT Standard Requirements and with Section 01400.
- D. If tests indicate that the Work does not meet specified requirements, remove Work, replace and retest at no cost to OWNER.
- E. Frequency of Tests: As directed by the ENGINEER and OWNER'S testing consultant.
- F. Proof roll compacted fill surfaces under paving.

3.08 Protection of Finished Work

- A. Protect finished Work under provisions of Section 01500 – Construction Facilities and Temporary Controls and Section 01700 – Contract Closeout.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.09 Schedule

- A. Fill under Grass Area: Acceptable native subsoil (re-used, free of gravel larger than 3-inch size and debris), to 4 inches below finish grade, compacted to 95 percent maximum dry density.
- B. Fill under Asphalt Paving: MDOT Class II to underside of aggregate base course elevation, compacted to 95 percent maximum dry density.
- C. Fill under Concrete Building Pads, Concrete Pads, Concrete Curb and Gutter and Sidewalks: MDOT Class II to within 4" of underside of concrete slab. All fill to be compacted to 95 percent maximum dry density.
- D. Backfill for Utility Trenches: Bedding as specified in individual utility standard detail sheets.
- E. Fill for Subgrade and Undercutting: MDOT Class II to proposed subgrade elevation, compacted to 95 percent maximum dry density.

PART 4 – PAYMENT

- 4.01 Measurement and Payment see Section 01270.

END OF SECTION

SECTION 02231

AGGREGATE BASE COURSE

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes:
 - 1. Aggregate Placement.
- B. Related Sections
 - 1. Section 02211 – Rough Grading
 - 2. Section 02223 – Backfilling
 - 3. Section 02225 – Trenching.
 - 4. Section 02575 – Pavement Repair

1.02 References

- A. MDOT Standard Specifications for Construction, current edition.
- B. MDOT Density Testing and Inspection Manual, current edition.

1.03 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Submit a 5-gallon sample of each type of aggregate to the OWNER'S testing consultant.

PART 2 – PRODUCTS

2.01 Materials

- A. MDOT 22A Dense-Graded Aggregate – Aggregate Base Course.

2.02 Source Quality Control

- A. CONTRACTOR shall obtain aggregate from and MDOT-certified pit.
- B. Furnish material certification from supplier as required by the ENGINEER.

PART 3 – EXECUTION

3.01 Examination

- A. Inspect subbase and/or subgrade and verify that elevation and gradients are correct, and the material is dry and ready for pavement layer(s).

3.02 Aggregate Placement

- A. Spread aggregate over prepared base to a total compacted thickness as indicated on the drawings and specifications.

- B. Level and contour surfaces to elevations, depths, and gradients as indicated on the plans and in the specifications.
- C. Compact placed aggregate materials to a minimum of 95 percent of its maximum dry density as determined by modified proctor method.
- D. If necessary, add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- E. Use mechanical vibrating tamping in areas inaccessible to rollers.
- F. See plans for required aggregate depths.

3.03 Tolerances

- A. Flatness: Maximum variation of 3/8 inch measure with 10-foot straight edge.
- B. Scheduled Compacted Thickness: With 1/4 inch.
- C. Variation from True Elevation: Within 1/2 inch.

3.03 Field Quality Control

- A. Field inspection and testing will be performed under the provisions of Section 01400 – Quality Control. Testing will be performed by the OWNER'S Testing Consultant.
- B. Frequency of Tests: As directed by the ENGINEER.
- C. Subgrade and subbase shall be compacted per Sections 02223 – Backfilling, and 02225 – Trenching.

PART 4 – PAYMENT

- 4.01 Unit Price – Measurement and Payment see Section 01270.

END OF SECTION

SECTION 02271

CHANNEL AND SLOPE PROTECTION

PART 1 – GENERAL

1.01 Summary

A. Section Includes

1. Riprap Slope and Scour Protection.
2. Riprap Spillway.
3. Check Dams.
4. Rock Vanes.
5. Culvert Outlet Protection.
6. Turf Reinforcement Mat.
7. Soil-Binding Polymers.

B. Related Sections

1. Section 02211 – Rough Grading.
2. Section 02215 – Open Drain Specifications
3. Section 02222 – Excavation.
4. Section 02223 – Backfilling.
5. Section 02279 – Filter Fabric.
6. Section 02715 – Lateral Tile Drains – Surface Outlet Tubes.
7. Section 02110 – Site Clearing.
8. Section 02274 – Soil Erosion and Sedimentation Control.
9. Section 02936 – Seeding.

1.02 Submittals

A. Submit under provisions of Section 01300 – Submittals.

B. Submit shop drawings and product data for all items to be installed within this section.

PART 2 – PRODUCTS

2.01 Materials

A. MDOT Plain Riprap – Sound, tough, durable uniform crushed stone free from structural defects. Material to be uniform in size and range in dimension from 8 to 16 inches.

B. MDOT Heavy Riprap – Sound, tough, angular durable uniformly crushed stone free from structural defects. Material to be uniform in size and not less than 16 inches in the least dimension, with an average of 18 inches to 24 inches diameter.

C. Fieldstone Riprap – Sound, tough, durable, uniformly crushed, natural stone free from structural defects. Material to be uniform in size and range in dimension from 8 to 16 inches. Limestone, concrete blocks, or pieces of recycled concrete are not permitted.

D. Filter Fabric – As specified in Section 02279 – Filter Fabric.

E. Turf reinforcement mat – North American Green SC250 / C350 or ENGINEER approved equal.

- F. Turf reinforcement mat securing pins –North American Green Eco Stakes (12” long) or approved equal.
- G. Soil-binding polymer – Silt Stop® or approved equal.

PART 3 – EXECUTION

3.01 Riprap Slope and Scour Protection

- A. Clear topsoil and rough grade to required contours. Over excavate to a depth equal to the thickness of the riprap.
- B. Over-excavate to a depth equal to the thickness of the riprap.
- C. Place filter fabric in accordance with Section 02279 – Filter Fabric.
- D. Place plain or heavy riprap on filter fabric. Tamp until firmly embedded. If necessary, place by hand to ensure that there are no void spaces (i.e., the filter fabric should not be visible after completion).

3.02 Riprap Spillway

- A. Clear topsoil and rough grade to required dimensions. Over excavate spillway so that upon completion the flow line of the spillway is recessed 18 inches below the proposed side slope of the open drain.
- B. Construct spillway with a minimum 4-foot bottom and a side slope of 2:1 (horizontal to vertical) unless directed otherwise by the ENGINEER. Place riprap to a minimum width of 8 feet across the spillway.
- C. Place filter fabric in accordance with Section 02279 – Filter Fabric.
- D. Place riprap starting at the toe of slope and extend 3 feet beyond top of bank. Place riprap to a width of 8 feet across the spillway.
- E. Tamp riprap until individual pieces are firmly bedded.
- F. Hand place stone, if necessary, to assure that there are no void spaces in protection. Upon completion the filter fabric should not be visible.

3.03 Check Dams

- A. Place check dams at the location(s) noted on the plans.
- B. Construct the check dam with MDOT plan riprap unless otherwise noted.
- C. Construct the check dams to the shape and dimensions noted in the plans.
- D. Remove temporary check dams after stable establishment of channel vegetation.

3.04 Rock Vanes

- A. Place J-hook or cross vanes at the location(s) noted on the plans.
- B. Construct the vane with type and size of riprap noted in the plans.

C. Construct the vanes to the shape and dimensions noted in the plans.

3.05 Culvert Outlet Protection

A. Place riprap at each culvert outlet.

B. Place filter fabric in accordance with Section 02279 – Filter Fabric.

C. Riprap shall begin at a depth of 6 inches below the flow line of the drain and extend up the embankment to a height 2 feet above the top of the culvert.

D. Riprap shall extend 2 feet beyond each side of the culvert.

3.06 Turf Reinforcement Mat

A. Repair slope if necessary in the area designated for protection.

B. Place topsoil on disturbed slopes to a minimum depth of 2 inches.

C. Rake in fertilizer; apply at the rate of 15 pounds per 1000 square feet.

D. Apply ditch bank seeding mix at a rate of 6 pounds per 1,000 square feet.

E. Place turf reinforcement mat with all edges extending completely.

F. Place header and toe protection.

G. Place metal pins to anchor fabric as recommended by the manufacturer.

PART 4 – PAYMENT

4.01 Unit Price – Measurement and Payment see Section 01270.

END OF SECTION

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SECTION 02274

SOIL EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL

1.01 Regulatory Requirements

- A. Perform and maintain work in accordance with “Soil Erosion and Sedimentation Control – Authorized Public Agency Procedures Manual”, Saginaw County Public Works Commissioner, Brian J. Wendling, and Soil Erosion and Sedimentation Control, Part 91 of Act 451 of 1994, as amended.
- B. The Public Works Commissioner’s Office, as the authorized public agency (APA), reserves the right to amend the soil erosion and sedimentation control plan and measures during the course of the project.

1.02 Control Measures

- A. Numbers corresponding to the Saginaw County Public Works Commissioner’s Soil Erosion and Sedimentation Control (hereinafter referred to as “SESC”) APA Procedures Manual identify control measures on the construction plans.
- B. Employ additional control measures as required by site conditions, the applicable enforcing agency having jurisdiction, or as directed by the ENGINEER.

1.03 Project Schedule / Implementation

- A. Prior to start of construction, submit schedule for installation of temporary and permanent SESC measures (including dust control) to the ENGINEER, Ingham County Drain Commissioner and local enforcing agency having jurisdiction.
- B. CONTRACTOR will be responsible for all SESC measures.
- C. **CONTRACTOR shall pay close attention to seeding/slope stabilization and dust control.** Refer to the SESC APA Procedures Manual for appropriate methods and frequency of application.

1.04 Inspection and Enforcement

- A. CONTRACTOR shall be responsible for daily inspection of SESC measures until final acceptance by OWNER.
- B. ENGINEER and OWNER will conduct daily inspections of SESC measures and after significant runoff events (not limited to rainfall).
- C. OWNER will provide CONTRACTOR with written notice if corrective action is required.
- D. CONTRACTOR is responsible for all costs of compliance.
- E. CONTRACTOR is also responsible for the costs of any fines and additional compliance measures required by enforcement agencies having jurisdiction other than the Ingham County Drain Commissioner.
- F. If the Saginaw County Public Works Commissioner is itself found to be in violation of Part 91 due to CONTRACTOR non-compliance, the CONTRACTOR will be fully responsible for any fines and costs incurred by OWNER in association with a violation, including legal defense.

- G. The Saginaw County Public Works Commissioner reserves the right to issue a stop work order for significant or regular non-compliance with SESC rules and regulations (Act 91) by the CONTRACTOR.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

PART 4 – PAYMENT

4.01 Unit Price – Basis of Measurement see Section 01270.

END OF SECTION

SECTION 02279

FILTER FABRIC

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes
 - 1. Filter Fabric.
- B. Related Sections
 - 1. Section 02211 – Rough Grading
 - 2. Section 02215 – Open Drain Specifications
 - 3. Section 02271 – Channel and Slope Protection
 - 4. Section 02715 – Lateral Tile Drains.
 - 5. Section 02751 – Drain Crossings

1.02 References

- A. ASTM/D-4632 – Test method for Tensile Strength and Elongation.
- B. ASTM D-3786 – Test method for Mullen Burst.
- C. ASTM D-4533 – Test method for Trapezoidal Tear Strength.
- D. ASTM D-3787 – Test method for Puncture Strength.
- E. ASTM D-4751 – Test method for Apparent Opening Size.
- F. ASTM D-4491 – Test method for Coefficient of Permeability.

PART 2 – PRODUCTS

2.01 Materials

- A. Mechanically bonded, non-woven, long-chain polymeric fibers or yarns. The edges of the fabric shall be finished to prevent the outer fiber from pulling away from the fabric.

- 1. Filter fabric for groundwater infiltration applications (French drains, trench drains, pipe joint wrap, etc.) is to have, at minimum, the following properties:

Tensile Strength	100 lbs
Tensile Elongation (max)	100 %
Mullen Burst	210 psi
Trapezoidal Tear Strength	40 lbs
Puncture Strength	65 lbs
Apparent Opening Size (max)	70 sieve
Flow Rate	140 gal/min/ft

- 2. Filter fabric for cobblestone applications (cobblestone streambed protection, splash pads, etc.) to have, at minimum, the following properties:

Tensile Strength	120 lbs
Tensile Elongation (max)	100 %
Mullen Burst	230 psi

Trapezoidal Tear Strength	45 lbs
Puncture Strength	70 lbs
Apparent Opening Size (max)	70 sieve
Flow Rate	135 gal/min/ft

3. Filter fabric for plain riprap applications (riprap, riprap spillways, etc.) concrete box culvert joints are to have, at minimum, the following properties:

Tensile Strength	155 lbs
Tensile Elongation (max)	100 %
Mullen Burst	315 psi
Trapezoidal Tear Strength	65 lbs
Puncture Strength	95 lbs
Apparent Opening Size (max)	70 sieve
Flow Rate	110 gal/min/ft

4. Filter fabric for heavy riprap applications is to have, at minimum, the following properties:

Tensile Strength	200 lbs
Tensile Elongation (max)	100 %
Mullen Burst	350 psi
Trapezoidal Tear Strength	75 lbs
Puncture Strength	100 lbs
Apparent Opening Size (max)	80 sieve
Flow Rate	95 gal/min/ft

PART 3 – EXECUTION

3.01 Examination

- A. Verify that the fabric is the correct one for the intended use.
- B. The ENGINEER may reject the filter fabric if removed from its protective cover more than 72 hours before installation, or if it shows evidence of defects, tears, punctures, flow deterioration, or other damage incurred during manufacture, transportation or storage.
- C. Do not install torn, punctured or otherwise damaged fabric.

3.02 Preparation

- A. Remove large stones or other debris, which could damage the filter fabric.

3.03 Storage

- A. During all periods of shipment and storage, the filter fabric shall be protected from abrasion, direct sunlight, ultraviolet rays, and temperatures greater than 140 degrees Fahrenheit (or as directed the manufacturer). Keep the fabric wrapped in its protective covering until ready for use.

3.04 Installation

- A. Maintain a minimum 2-foot overlap at all joints in the material.
- B. Any damaged material shall be repaired by placing a piece of fabric that is sufficiently large to cover the damaged area plus 2 feet of adjacent undamaged geotextile in all directions.

- C. Finish according to manufacturer's recommendations for the intended use.
- D. Edges of filter fabric used in all instances must be "toed in" at least 12 inches unless specified otherwise. Work will not pass inspection if filter fabric is not "toed in."

PART 4 – PAYMENT

4.01 Unit Price – Measurement and Payment see Section 01270.

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SECTION 02575

PAVEMENT REPAIR

PART 1 – GENERAL

1.01 Summary

- A. Section Includes
 - 1. Temporary Patches.
 - 2. Driveways.
 - 3. Roads and Streets.
 - 4. Shoulders.
 - 5. Curbs.
 - 6. Sidewalks.
 - 7. Pavement Markings.
- B. Related Sections
 - 1. Section 02222 - Excavation.
 - 2. Section 02223 – Backfilling.
 - 3. Section 02225 – Trenching.
 - 4. Section 02231 – Aggregate Base Course.

1.02 Submittals

- A. Submit under provisions of Section 01300 – Submittals.
- B. Submit samples, mix designs and product data for all items covered in this section.

1.03 Regulatory Requirements

- A. Perform construction within public road right-of-way to meet the requirements of the authority having jurisdiction.
- B. Obtain construction permits as required by the authority having jurisdiction over the work in the public right-of-way. Notify the authority not less than 48 hours prior to working within the road right-of-way.
- C. Maintain traffic control as required in Section 01570 – Maintaining Traffic.

1.04 References

- A. Michigan Department of Transportation Standard Specifications for Construction, current edition.

PART 2 – PRODUCTS

2.01 Materials and Mixtures

- A. MDOT 22A Dense Graded Aggregate – Bituminous pavement aggregate base course.
- B. MDOT 23A Dense Graded Aggregate – Gravel surface course and road shoulder material.
- C. MDOT 2NS Fine Graded Aggregate – Concrete subbase.

D. Asphalt

1. Cold Mix – Temporary patching (proprietary mix design)
2. Hot Mix – Permanent pavement (use the following mixture types, or as directed by ENGINEER)
 - a. Leveling course – MDOT 13A
 - b. Wearing course – MDOT 13A or 36A
 - c. Binder Grade – PG 58-28
3. Asphalt Bond Coat – SS-1h

E. Concrete – MDOT P1 (use high early strength mixture for driveways), 0- to 3-inch slump

F. Pre-molded Joint Filler – Conforming to ASTM D 1751 and D 1752.

G. Curing Compound – Liquid membrane forming, conforming to ASTM C 309, Type 2.

H. Paint – Regular dry paint, liquid pavement marking material. Match existing color. Refer to Qualified Products List in the current “MDOT Materials Source Guide” for acceptable manufacturers.

2.02 Source Quality Control

- A. CONTRACTOR shall obtain aggregates from MDOT-certified pits.
- B. CONTRACTOR shall obtain asphalt and concrete mixtures from MDOT-certified batching plants.
- C. Provide mix design under provisions of Section 01400 – Quality Control.
- D. Submit proposed asphalt and concrete mix designs to the OWNER’S Testing Consultant for review prior to commencement of work.
- E. Submit certification for constituent materials to ensure conformance with specified requirements as required by the ENGINEER.

PART 3 – EXECUTION

3.01 Examination

- A. Verify condition of base layer(s) under provisions of Section 02223 – Backfilling, and 02225 – Trenching.
- B. Verify that compacted subgrade, granular base or aggregate base is dry and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct and capable of providing positive drainage.

3.02 Temporary Patches

- A. Make temporary repairs of all driveways, roads, etc. immediately after utility installation.
- B. Maintain temporary patches until installation of permanent repairs. Mark areas with appropriate signage to provide motorists with adequate warning of dips, bumps or rough surfaces.

3.03 Driveways

- A. Bituminous and/or concrete drives to be repaired shall be sawcut to provide a straight edge. The driveway shall be replaced to an existing joint if located within 5 feet of the utility trench. The minimum replacement width shall be the trench width plus 4 feet.
- B. All drives shall be completely backfilled with sand compacted to 95 percent of its maximum dry density as determined by modified proctor method.

3.04 Roads and Streets

A. Preparation

- 1. Adjust manholes, catch basins, valve boxes, and monument boxes to grade.
- 2. Sawcut and remove existing pavement a minimum of 2 feet back from top edge of undisturbed soil on both sides of trench.
- 3. Sawcut to a minimum of 1½-inch depth on straight-line perpendicular to the roadway.
- 4. Remove pavement to an existing joint when a joint lies within 5 feet of the top edge of undisturbed soil.
- 5. Prepare other areas damaged during construction as determined by the ENGINEER according to these guidelines.
- 6. Remove loose material from compacted base or subbase.
- 7. Notify ENGINEER minimum 2 working days prior to placing paving mix.

B. Asphalt Paving

- 1. Coat surfaces of manholes, catch basin frames, and valve and monument boxes with oil to prevent bond with paving mix.
- 2. CONTRACTOR shall check weather forecasts prior to paving and respect weather and seasonal limitations.
- 3. If precipitation occurs during paving, CONTRACTOR shall postpone operations until conditions are appropriate to resume (see below). OWNER or ENGINEER may direct CONTRACTOR to remove and replace asphalt placed during precipitation at CONTRACTOR'S expense.
- 4. The aggregate base course shall be firm and shall not exhibit excessive moisture. When paving over existing pavement, there shall be no standing water on the pavement prior to placing the bond coat or the next pavement layer.
- 5. Apply bond coat to clean dry surfaces (curbs and existing pavement) in accordance with manufacturer's recommendations and MDOT standards.
- 6. Install materials to the thicknesses shown on the plans. If the total depth of any one mixture is greater than the maximum recommended thickness for that material (per MDOT "Hot Mix Asphalt Selection Guidelines"), the CONTRACTOR shall place more than one layer such that each layer falls within the appropriate thickness range.

7. Compact asphalt by rolling with a minimum 5-ton roller unless otherwise directed by ENGINEER. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
8. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks for asphalt paving.

C. Concrete Paving

1. Set, brace and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
2. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.
3. If used, install steel reinforcement as shown in the construction plans.
4. Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
5. Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, other fixed objects, and where indicated.
6. Use bonding agent at joint locations when placing fresh concrete against hardened or partially hardened concrete surfaces.
7. After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius unless noted otherwise on the plans. Repeat tooling of edges after applying surface finishes. No edging required on saw cut joints.
8. Moisten subbase to provide a uniform dampened condition at time concrete is placed.
9. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
10. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
11. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
12. Screed paving surface with a straightedge and strike off.
13. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
14. Take appropriate precautions during hot- and cold-weather placement to protect the concrete. Measures may include cooling or heating ingredients, fog spraying forms and subbase just prior to placement, etc.
15. Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations.

16. Float surface by screed board or by hand floating if area is small or inaccessible to screed boards. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
17. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
18. Cure concrete using curing compound.

3.05 Curbs

- A. See Roads and Streets – Concrete above for preparation and placement.
- B. Produce curbs and gutters to required cross-section, lines, grades, finish and jointing.

3.06 Sidewalks

- A. See Roads and Streets – Concrete above for preparation and placement.
- B. Install detectable warnings at pedestrian crossings.

3.07 Pavement Markings

- A. Apply pavement markings in accordance with MMUTCD and consistent with existing markings surrounding the repair area.

3.08 Shoulders

- A. Install shoulder material to the thickness shown on the plans on prepared subgrade.
- B. Compact asphalt by rolling with a minimum 5-ton roller unless otherwise directed by ENGINEER. Do not displace shoulder material from position.

3.09 Field Quality Control

- A. Field inspection and testing will be performed under the provisions of Section 01400 – Quality Control. Testing will be performed by the OWNER'S Testing Consultant.
- B. Subgrade, subbase and aggregate base materials shall be compacted per Sections 02223 – Backfilling, and 02225 – Trenching.
- C. Asphalt shall be compacted to not less than 97% of the Job Mix Formula.
- D. Test the slump and air content of each concrete batch delivered to the Project.
- E. Form and cure at least one set of concrete compression test cylinders for every placement day. Each set shall include two (2) cylinders for each test age (7-, 14- and 28-days).

PART 4 – PAYMENT

4.01 Unit Price – Measurement and Payment see Section 01270.

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SECTION 02715

LATERAL TILE DRAINS

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes
 - 1. Field Tile Outlets.
 - 2. Surface Outlet Tubes.
- B. Related Sections
 - 1. Section 02215 – Open Drain Specifications
 - 2. Section 02222 – Excavation.
 - 3. Section 02225 – Trenching.
 - 4. Section 02271 – Channel and Slope Protection.
 - 5. Section 02279 – Filter Fabric.

1.02 Reference

- A. ASTM F 2648 – Standard Specification for 2- to 60-inch Annular Corrugated Polyethylene Pipe.
- B. AASHTO M 036 / ASTM A 760 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe (CSP).

1.03 Submittals

- A. Submit shop drawings and product data for all items under provisions of Section 01300 – Submittals.

1.04 Protection

- A. CONTRACTOR shall locate all existing field tile outlets and exercise due care to prevent damage during construction.
- B. Any damage to drainage tiles and outlets during construction shall be repaired, the work to be incidental to the project.

PART 2 – PRODUCTS

2.01 Materials

- A. Field Tile Outlets, 6- to 10-inch – Dual-wall HDPE, smooth-lined corrugated polyethylene pipe (SLCPP), or SDR 26 PVC.
- B. Field Tile Outlets, 12-inch and larger – Dual-wall, HDPE smooth-lined corrugated polyethylene pipe (SLCPP).
- C. Surface Outlet Tubes – Galvanized CSP, 16-gauge with 2-2/3 inches x 1/2 inch corrugations.
- D. Flap Gates – Waterman Industries F-10 cast iron drainage gate, or equal.
- E. Rodent Guard – Manufactured by pipe manufacturer and/or approved by the ENGINEER.
- F. Riprap Spillway – See Section 02271 – Channel and Slope Protection.

PART 3 – EXECUTION

3.01 Work

- A. Construct, repair, install, or make connections to field tiles according to the plans, these specifications, and according to the manufacturer recommendations.

3.02 Preparation

- A. Coordinate locations of proposed field tile outlets and surface outlet tubes with ENGINEER prior to delivering material to site. Tubes may or may not be installed based on landowner preference and ENGINEER'S decision.
- B. Receive direction from ENGINEER as to which field tile outlets are in need of repair even if indicated on plans.

3.03 Installation – Field Tile Outlets

- A. Installation shall be as shown on the plans. See Section 02222 – Excavation and Section 02225 – Trenching. Backfill material shall be native material.
- B. Field tile outlet shall be installed at a minimum of 1 percent slope to provide for positive drainage.
- C. All joints between like materials shall be connected with a pre-fabricated connector.
- D. All joints between unlike materials shall be as shown on the plans or as approved by the ENGINEER.
- E. Rodent guards are not required unless they are in use on existing tile outlets.
- F. Place riprap splash pad beneath tile outlet. See Section 02279 – Filter Fabric, and Section 02271 – Slope Protection and Erosion Control.
- G. Clean out any field tile outlets that do not require replacement and/or extension.

3.04 Installation – Surface Outlet Tubes

- A. Installation shall be as shown on the plans. See Section 02222 – Excavation and Section 02225 – Trenching. Backfill material shall be native material.
- B. Provide a minimum of 0.5 feet of fall in tube or as shown on the plans.
- C. Provide a minimum of 2' cover.
- D. Install riprap splash pad with filter fabric at the outlet of the tube. Install riprap spillway based on landowner preference and/or ENGINEER'S direction. Coordinate all installations with ENGINEER prior to delivering materials to site.

Part 4 – PAYMENT

4.01 Measurement and Payment see Section 01270

END OF SECTION

SECTION 02751

DRAIN CROSSINGS

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes
 - 1. Existing Crossings to Remain
 - 2. Existing Crossings to be Removed
 - 3. New and Replacement Crossings
- B. Related Sections
 - 1. Section 02110 – Site Clearing.
 - 2. Section 02140 – Dewatering.
 - 3. Section 02211 – Rough Grading.
 - 4. Section 02215 – Open Drain Specifications
 - 5. Section 02222 – Excavation.
 - 6. Section 02223 – Backfilling.
 - 7. Section 02271 – Slope Protection and Erosion Control.
 - 8. Section 02279 – Filter Fabric.
 - 9. Section 02575 – Pavement Repair.
 - 10. Section 02923 – Landscape Grading.
 - 11. Section 02936 – Seeding.

1.02 Submittals

- A. Submit shop drawings under provisions of Section 01300 – Submittals.
- B. Provide two (2) copies of permits for road and highway crossings to ENGINEER.

1.03 Field Quality Control

- A. Field inspection and testing will be performed under provisions of Section 01400 – Quality Control.

1.04 Protection of Finished Work

- A. Protect finished work under provisions of Section 01560 – Construction Facilities and Temporary Controls.

PART 2 – PRODUCTS

2.01 Culvert Materials

CONTRACTOR shall supply the culvert type designated on the plans. All culvert materials delivered to the site and installed in the Work shall conform to the following specifications:

- A. Corrugated Steel Pipe:
 - 1. Metallic-Coated – AASHTO M 036, or ASTM A 760.
 - 2. Polymer-Coated – AASHTO M 245, or ASTM A 762.
- B. Corrugated Steel Structural Plate (Zinc-Coated) for Field-Bolted Pipe, Pipe Arch and Arches – AASHTO M 167, or ASTM B 761.

- C. Corrugated Aluminum Structural Plate for Field-Bolted Pipe, Pipe Arch and Arches – AASHTO M 219, or ASTM B 746.
- D. Corrugated Aluminum Box Culverts – ASTM B 864.
- E. Pre-cast Concrete Pipe – ASTM C 76.
- F. Pre-cast Concrete Box Culverts – ASTM C 1433.
- G. Smooth-lined Corrugated Plastic Pipe – AASHTO M 294.

2.02 Bedding, Backfill and Surface Material

- A. Native Crossings
 - 1. Bedding: Crushed angular MDOT 6A coarse aggregate, unless shown otherwise on plans.
 - 2. Backfill: MDOT Class II granular material to springline of pipe; ENGINEER approved native material or MDOT Class II granular material installed to bottom of surface material.
 - 3. Match existing native surface material.
- B. Gravel Crossings
 - 1. Bedding: Crushed angular MDOT 6A coarse aggregate, unless shown otherwise on plans.
 - 2. Backfill: MDOT Class II granular material installed to bottom of road section.
 - 3. See plans for pavement restoration.
- C. Pavement Crossings
 - 1. Bedding: Crushed angular MDOT 6A coarse aggregate, unless shown otherwise on plans.
 - 2. Backfill: MDOT Class II Granular material installed to bottom of road section.
 - 3. See plans for pavement restoration.

PART 3 – EXECUTION

3.01 Preparation

- A. Contact ENGINEER 48 hours prior to any work on crossing to verify construction and installation schedule and to schedule necessary inspection time for installation.
- B. Verify that backfill and roadway requirements meet specifications of Authority having jurisdiction.
- C. Verify acceptability of backfill material with ENGINEER.
- D. Verify approval of all shop drawing submittals with ENGINEER.
- E. Verify benchmarks and required culvert placement elements and alignment.
- F. Verify that all traffic and safety controls meet the requirements of the Authority having jurisdiction.

3.02 Existing Crossings to Remain

- A. Remove all sediment and debris from culverts to remain in place. CONTRACTOR shall be responsible for hauling and disposing spoils off-site.

3.03 Existing Crossings to be Removed

- A. Remove existing culverts as indicated on the plans.

- B. Removed culverts shall become property of the CONTRACTOR unless otherwise noted by the OWNER or ENGINEER.
- C. If guardrail is present, it shall become the property of the CONTRACTOR unless otherwise noted by the OWNER or ENGINEER.
- D. CONTRACTOR shall exercise care when handling material designated for salvage and transfer to OWNER.
- E. Materials that are (or become) unsuitable for re-use by OWNER shall become the property of the CONTRACTOR. CONTRACTOR shall remove these materials from the site.
- F. Grade and restore area around removed culverts to match proposed contours, elevations, and cross sections.

3.04 New and Replacement Crossings

- A. CONTRACTOR shall maintain flow at all times through the drain. CONTRACTOR shall submit proposed procedure to ENGINEER for approval prior to construction. Cost shall be included in the cost per linear foot of drain crossing.
- B. Special care shall be taken when storing, handling and placing culverts so they are not cracked, dented or scaled. If coated, CONTRACTOR shall take care not to damage the coating.
- C. Excavate to required dimensions and remove existing culvert or structure where applicable.
- D. Compact all subsoil and bedding material to minimum 95 percent maximum unit weight as determined by modified proctor method.
- E. Cut out soft areas not capable of in situ compaction. Backfill with crushed angular MDOT 6A coarse aggregate. Compact to minimum 95 percent maximum unit weight as determined by modified proctor method. See Subgrade Undercutting and Backfilling in Section 02222 – Excavation.
- F. Place bedding (and scour protection, if applicable) according to detail shown on plans.
- G. Place culvert according to the planned elevations and alignment.
- H. Assemble culvert components according to manufacturer's specifications.
- I. Install joints according to manufacturer's specifications using materials provided by the supplier. Wrap joint exteriors with a 3-foot wide band of filter fabric if not using soil tight joints.
- J. Backfill to springline of culvert with bedding material. Thoroughly compact in accordance with the manufacturer's recommendations. Fill the remaining space along the culvert barrel up to a depth of 12" over the top of the culvert with carefully compacted granular material (compact to not less than 95 percent maximum unit weight). Backfill the remaining trench to bottom of surface section with native soil, granular material or combination thereof based on the intended use of the crossing and compact according to Section 02223 – Backfilling.
- K. Install pavement sections in accordance with Section 02575 – Pavement Repair.
- L. Restore native crossings and disturbed areas adjacent to paved crossings in accordance with Sections 02923 and 02936 (Landscape Grading and Seeding, respectively).

PART 4 – PAYMENT

4.01 Measurement and Payment see Section 01270.

END OF SECTION

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SECTION 02923

LANDSCAPE GRADING

PART 1 – GENERAL

1.01 Summary

- A. Section Includes
 - 1. Inspection.
 - 2. Protection.
 - 3. Subsoil Preparation.
 - 4. Placing Topsoil.
- B. Related Sections
 - 1. Section 01400 – Quality Control.
 - 2. Section 01700 – Contract Closeout.
 - 3. Section 02211 – Rough Grading.
 - 4. Section 02223 – Backfilling.
 - 5. Section 02936 – Seeding.

PART 2 – PRODUCTS

2.01 Materials

- A. Topsoil – Friable loam free of subsoil, roots, grass, excessive amount of weeds, stone, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter.
- B. Topsoil used for special applications (e.g. golf courses) shall conform to the mix specified by the OWNER or as noted on the plans.

2.02 Samples

- A. Submit lab results or samples for testing as requested by the OWNER or ENGINEER if imported topsoil is used.
- B. Submit samples under provisions of Section 01400 – Quality Control.
- C. Submit 5-gallon bucket of sample of imported fill to testing laboratory in airtight containers.

PART 3 – EXECUTION

3.01 Inspection

- A. Verify site conditions and note irregularities affecting work of this Section.
- B. Beginning work of this Section means acceptance of existing conditions.

3.02 Protection

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, fences, roads, sidewalks, paving, mailboxes, and curbs.

3.03 Subsoil Preparation

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, and stones, in excess of ½ inch in size.
- C. Remove subsoil contaminated with petroleum products and dispose of offsite.
- D. Scarify subgrade to minimum depth of 8 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.04 Placing Topsoil

- A. Place topsoil to a minimum 4 inches compacted depth in areas where seeding, sodding and planting is scheduled.
- B. For special applications, topsoil shall be placed per the OWNER'S requirements or as noted on the plans.
- C. Use topsoil in relatively dry state. Do not place topsoil when weather conditions are excessively windy.
- D. Handle and place topsoil only when weather and soil moisture permits.
- E. Placement of topsoil in frozen or muddy conditions shall not be permitted.
- F. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.
- G. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.
- H. Manually spread topsoil around trees and plants to prevent damage.
- I. Lightly compact placed topsoil in preparation for seeding, fertilizing, and mulching.
- J. Fertilizer and lime shall be applied at the minimum rates indicated by tests and shall be raked into the top 2 inches of the topsoil.
- K. Remove surplus subsoil and topsoil from site.
- L. Import topsoil as necessary to match the depths as specified on the plans.
- M. Leave stockpile area and site clean and raked, ready to receive landscaping.
- N. Place required trees, shrubs, fences, and mail boxes in their proper locations.

3.05 Tolerances

- A. Top of Topsoil: Plus or minus ½ inch.

PART 4 – PAYMENT

4.01 Measurement and Payment see Section 01270

END OF SECTION

SECTION 02936

SEEDING OF LANDSCAPES AND WATERWAYS

PART I – GENERAL

1.01 Summary

A. Section Includes

1. Fertilizer
2. Hand or Mechanical Seeding.
3. Hydroseeding.
4. Soil Erosion and Sedimentation Control.
5. Maintenance.

B. Related Sections

1. Section 02110 – Site Clearing.
2. Section 02215 – Open Drain Specifications
3. Section 02222 – Excavation.
4. Section 02223 – Backfilling.
5. Section 02274 – Soil Erosion and Sedimentation Control
6. Section 02923 – Landscape Grading.

1.02 Submittals

A. Submit under provisions of Section 01300 - Submittals.

- ###### B.
- Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, location of packaging, any tags from seed bags and any receipt associated with seeding.

1.03 Procurement

- ###### A.
- The CONTRACTOR shall obtain seed materials from qualified suppliers within 30 days of Contract Award and provide a list of suppliers to the ENGINEER.

- ###### B.
- The CONTRACTOR will provide a final list of all species purchased to the ENGINEER a minimum of 90 days prior to seeding.

1.04 Regulatory Requirements

- ###### A.
- Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 Delivery, Storage and Handling

- ###### A.
- Deliver, store, protect and handle products under provisions of Section 01600 — Material and Equipment.

- ###### B.
- Deliver seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

- ###### C.
- Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.

1.06 Coordination and Seeding Schedule

- A. The period for seeding is March 15 to June 1, and August 1 to October 15. (Temporary seeding with cereal rye at an application rate of 70 pounds per acre may take place between March 1 and October 15.) Seeding before or after these dates may require reseeding at the direction of the ENGINEER.
- B. At the discretion of the ENGINEER, dormant seeding may be made in late fall to germinate in the spring. Dormant seedings must be mulched. Do not seed when ground is frozen, or snow covered. Do not use dormant seeding on grassed waterways.

PART 2 - PRODUCTS

2.01 Materials

- A. Permanent Seed Mixtures (type, application rate, species, and percent by weight of pure live seed)

a. Roadside Right-of-Way (MDOT, TUF) 220 lbs. per acre

<u>Species</u>	<u>% by Wt. (PLS)</u>
Creeping Red Fescue	40
Perennial Ryegrass	20
Hard Fescue	20
Kentucky Blue Grass	10
Fults Salt Grass	10

b. Residential and Commercial Lawn (MDOT, THM) 220 lbs. per acre

<u>Species</u>	<u>% by Wt. (PLS)</u>
Kentucky Bluegrass	30
Perennial Ryegrass	20
Creeping Red Fescue	50

c. Grassed Waterway 30 lbs. per acre

<u>Species</u>	<u>% by Wt. (PLS)</u>
Tall Fescue	60
Perennial Ryegrass	24
Annual Ryegrass	13
Other	3

d. Uplands (MDOT, ES) 54 lbs. per acre

<u>Species</u>	<u>% by Wt. (PLS)</u>
Timothy	44
Perennial Ryegrass	20
Big Bluestem	17
Switchgrass	7
Indiangrass	6
Little Bluestem	6

e. Native and Wetlands – See Section 02937 “Native and Wetland Plant Seeding” if used.

- B. Fertilizer – 12-12-12 Commercial Grade, or equal.
- C. Straw Mulch – Small grain straw mulch, clean and weed free.

- D. Mulch Blankets (biodegradable) – North American Green SC150BN or S150BN, or equal (use with North American Green Eco Stakes).
- E. Hydro-seeding Mulch – Conwed Verdoyl #2000, or equal.
- F. Soil-Binding Polymer – APS Silt Stop® 705, or equal.

PART 3 - EXECUTION

3.01 Examination

- A. Verify that prepared subsoil base and topsoil layer is ready to receive the Work of this Section (see Section 02923 – Landscape Grading).

3.02 Protection

- A. Protect landscaping and other features remaining as final Work.
- B. Protect existing structures, fences, roads, sidewalks, paving, mailboxes, curbs, etc.

3.03 Fertilizer

- A. Uniformly apply granular fertilizer, free of lumps, on the prepared seed bed and incorporate into the upper 1 inch to 2 inches of the topsoil (and compost, if used) by light disking and harrowing.

3.04 Hand and Mechanical Seeding

- A. Daily seed all disturbed areas with seed mix as approved by the ENGINEER.
- B. Apply seed mix at the rate shown in Part 2 above per the intended use.
- C. Hand broadcast seed mix in designated areas. Mix seed with a lightweight inert material such as damp sawdust or vermiculite.
- D. For areas larger than 1 acre, a mechanical planter (e.g. a Truax drill) may be used.
- E. Upon completion of seeding, rake or drag seed to cover lightly with soil (not more than 1/4 inch deep). Lightly roll to firm the seed into the soil. Approximately 25 percent of the seed should still be visible on the surface.
- F. Where designated on the plans or by the ENGINEER, evenly apply mulch (1200 lbs. per acre) or mulch blankets on prepared seedbed (maintain clear of trees and shrubs). Allow sunlight to penetrate mulch so as not to cover more than 70% of the soil surface or as directed by the ENGINEER.

3.05 Hydroseeding

- A. Daily seed and mulch all disturbed areas with seed mix as approved by the ENGINEER.
- B. Apply seed and mulch slurry with a hydraulic seeder at a rate of 220 lbs. of seed per acre and 1400 lbs. of mulch per acre. Mix with Silt Stop® at the rate of 1 lb. per 300 gallons of water. Maintain clear of shrubs and trees.
- C. Apply water with a fine spray immediately after mulching each area. Saturate to 3 inches of soil.

3.06 Soil Erosion and Sedimentation Control

- A. Install permanent soil erosion and sedimentation control measures in accordance with the approved soil erosion and sedimentation control plan and permit issued for the project (see Section 02274 – Soil Erosion and Sedimentation Control).

3.07 Maintenance

- B. Maintain seeded areas after placement until seed mix is well established, exhibits a vigorous growing condition and is accepted for Final Payment by the OWNER. CONTRACTOR shall:
 - 1. Immediately reseed areas that show bare spots (ENGINEER may direct the use of additional fertilizer).
 - 2. Repair any eroded areas and reseed immediately.
 - 3. Monitor all seeded areas during site visits for water stress.
 - 4. Protect seeded areas from traffic and erosion. Safety fences or silt fences with appropriate signage may be used (at the CONTRACTOR'S expense) until these areas are fully established.
- C. The CONTRACTOR will be responsible for guaranteeing replacement of dead plant material and reseeded bare areas as directed for one year following Final Payment. The CONTRACTOR shall also be responsible for watering at the direction of the ENGINEER during the one-year guarantee period.
- D. Judgement of plant health will be the responsibility of the OWNER and ENGINEER.

PART 4 - MEASUREMENT AND PAYMENT

4.01 Measurement and Payment see Section 01270

END OF SECTION

SECTION 02998

CLEANUP AND RESTORATION

PART 1 – GENERAL

1.01 Summary:

- A. Section Includes:
 - 1. Cleanup
 - 2. Restoration
 - 3. Disposal of Waste and Excess or Rejected Materials
- B. Related Sections:
 - 1. Section 01500 – Construction Facilities and Temporary Controls.
 - 2. Section 02923 – Landscape Grading.
 - 3. Section 02936 – Seeding of Landscapes and Waterways.
 - 4. Section 02999 – Work within Wetland Areas.

PART 2 – PRODUCTS

Not used.

PART 3 - EXECUTION

1.02 Cleanup

- A. Proceed with construction cleanup as construction progresses.
 - 1. Remove mud, oil, grease, soil, gravel, trash, scrap, debris and excess materials that are unsightly or may cause accidents to persons or properties.
 - 2. Select and employ cleaning methods and equipment with care to avoid damaging, defacing or destroying structures or surfaces.
- B. Final Cleanup: Perform immediately before written request for final inspection of the Contract Work or any portion thereof.

1.03 Restoration

- A. Proceed with final restoration and stabilization upon completion of the Work, including landscape grading, seeding, mulching, and paving.
- B. Disassemble and remove all temporary construction facilities, and leave the construction limits in an orderly and restored condition.
- C. Restore public and private signs, markers, guardrails, fences, and landscaping to their original location and condition. CONTRACTOR shall repair or replace damaged items at his own cost.
- D. Restore landscape areas in accordance with Sections 02923 and 02936.
- E. Restore wetland areas in accordance with Section 02999.

F. Restore gravel surfaces and roadway shoulders to their condition before being disturbed. Replace shoulder or driveway material contaminated with foreign material with new material of same quality and gradation.

G. Restore pavement, curbs, other paved areas, and sidewalks in accordance with the plans.

1.04 Disposal of Waste and Excess or Rejected Materials

A. Dispose of construction waste and excess or rejected materials in an approved disposal area.

B. CONTRACTOR shall remove waste materials found in an unauthorized area. CONTRACTOR shall restore the area to its original condition at his own expense.

C. Dispose of human waste in accordance with the Health Department requirements.

PART 4 – PAYMENT

4.01 Measurement and Payment see Section 01270.

END OF SECTION

APPENDIX

1. EGLE Permit WRP 026900 v1.0



**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
PERMIT**

Issued To:

Saginaw County Drain Commissioner
111 S Michigan Ave
Saginaw, MI 48602

Permit No: WRP026900 v.1
Submission No.: HP2-TCWP-P4N2F
Site Name: 73-Branch of Babcock Drain-Saginaw
Issued: January 14, 2021
Revised:
Expires: January 14, 2026

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Part 301, Inland Lakes and Streams | <input checked="" type="checkbox"/> Part 323, Shorelands Protection and Management |
| <input checked="" type="checkbox"/> Part 303, Wetlands Protection | <input checked="" type="checkbox"/> Part 325, Great Lakes Submerged Lands |
| <input checked="" type="checkbox"/> Part 315, Dam Safety | <input checked="" type="checkbox"/> Part 353, Sand Dunes Protection and Management |
| <input checked="" type="checkbox"/> Part 31, Water Resources Protection (Floodplain Regulatory Authority) | |

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Excavate 838.6 linear feet in length of temporary wetlands to create a new section of Babcock drain currently acting as a drainage ditch, install two wetland equalizer culverts in permanent wetland of 6 feet in length by 4.301 feet in width and 40 feet in length by 4.3 feet in width with sand fill on top of those with the same dimensions. Also excavate 10.5 linear feet in length of the Babcock drain, in accordance with the attached plans and specifications of this permit.

Waterbody Affected: Babcock Drain and Unnamed Wetland
Property Location: Saginaw County, Maple Grove Township, T 09 N/R 04 E/Section 09

Authority granted by this permit is subject to the following limitations:

- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.

EGLE-WRD
WRP026900 v1.0
Approved
Issued On:01/14/2021
Expires On:01/14/2026

- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of EGLE.
- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
- M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.

- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/eglestormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
 2. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
 3. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.
 4. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
 5. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.
 6. If the project, or any portion of the project, is stopped and lies incomplete for any length of time, other than that encountered in a normal work week, every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.
 7. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.
 8. Exposed streambanks resulting from this construction shall be stabilized with temporary measures in accordance with appropriate Best Management Practices based on site conditions, and if necessary, may be riprapped extending above the ordinary high water mark, to provide adequate erosion protection. Temporary stabilization measures shall be maintained until permanent measures are in place.

9. All other exposed slopes, ditches, and other raw areas draining directly to the stream may be protected with riprap, sod and/or seed and mulch as may be necessary to provide effective erosion protection. The placement of riprap shall be limited to the minimum necessary to ensure proper stabilization of the side slopes and fill in the immediate vicinity of the structure.
10. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.
11. Prior to the initiation of any permitted construction activity, a sedimentation barrier shall be installed along the entire route of the disturbed wetland area and maintained in good working order until permanent stabilization and re-vegetation of all disturbed areas has occurred. The sedimentation barrier shall be removed after re-vegetation.
12. Construction must be undertaken and completed during the dry period of the wetland, or when frozen.
13. If the area does not dry out or freeze, construction shall be done on equipment mats to prevent compaction of the soil.
14. Upon completion of the project, the disturbed wetland areas shall be restored to the existing conditions, revegetated and reseeded (when needed) with species native to Michigan (including pollinator-dependent species) appropriate to the site, and mulched to prevent erosion.
15. All fill/backfill shall consist of clean inert material which will not cause siltation nor contain soluble chemicals, organic matter, pollutants, contaminants or broken concrete. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
16. For restored temporary wetland impacts, the permittee shall monitor the restored wetland over a period of one growing season following construction. Monitoring shall consist of the following:
 - a. Provide photographic documentation after construction access and restoration has been completed and after one growing season. The photolog shall have one representative photo for each temporarily impacted wetland that clearly shows the wetland vegetation present. Photos must be labeled with the location, date photographed, and direction. Staff will use such pictures for monitoring compliance with your permit. Failure to submit these photos is an event of noncompliance.
 - b. Documentation that the restored wetland is characterized by the presence of water at a frequency and duration sufficient to support a predominance of wetland vegetation and the wetland types that existed prior to construction, as documented in the permitted plans. A dominant plant list for each wetland location shall be submitted for each restored area and reference the photo locations for each. Plant species list must include common name, scientific name, wetland indicator category from the U.S. Army Corps of Engineers 2012 National Wetland Plant List for Michigan (Lichvar, R.W. 2012), physiognomic classification, and whether the species is considered native according to the Michigan Floristic Quality Assessment (Michigan Department of Natural Resources, 2001). Nomenclature shall follow in the *Flora of North America*, which can be found at www.fna.org
 - c. If the restored wetlands are not satisfactorily progressing to pre-construction conditions, the permittee may be required to take corrective actions.
 - d. This monitoring may be extended to additional growing season(s) if the site has not been shown to be restored to pre-construction conditions during the first growing season after construction until a time that the site has fully restored or other corrective actions such as mitigation for lost function is completed.
17. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.
18. No fill, excess soil, or other material shall be placed in any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.

19. All dredge/excavated spoils including organic and inorganic soils, vegetation, and other material removed shall be placed on upland (non-wetland, non-floodplain or non-bottomland), prepared for stabilization, and stabilized with sod and/or seed and mulch in such a manner so as to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.
20. Prior to the start of construction, all adjacent non-work wetland areas shall be protected by properly trenched sedimentation barrier to prevent sediment from entering the wetland. Orange construction fencing may be installed as needed to prohibit construction personnel from entering or performing work in these areas. Sedimentation barrier shall be maintained daily throughout the construction process. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site. The sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.
21. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

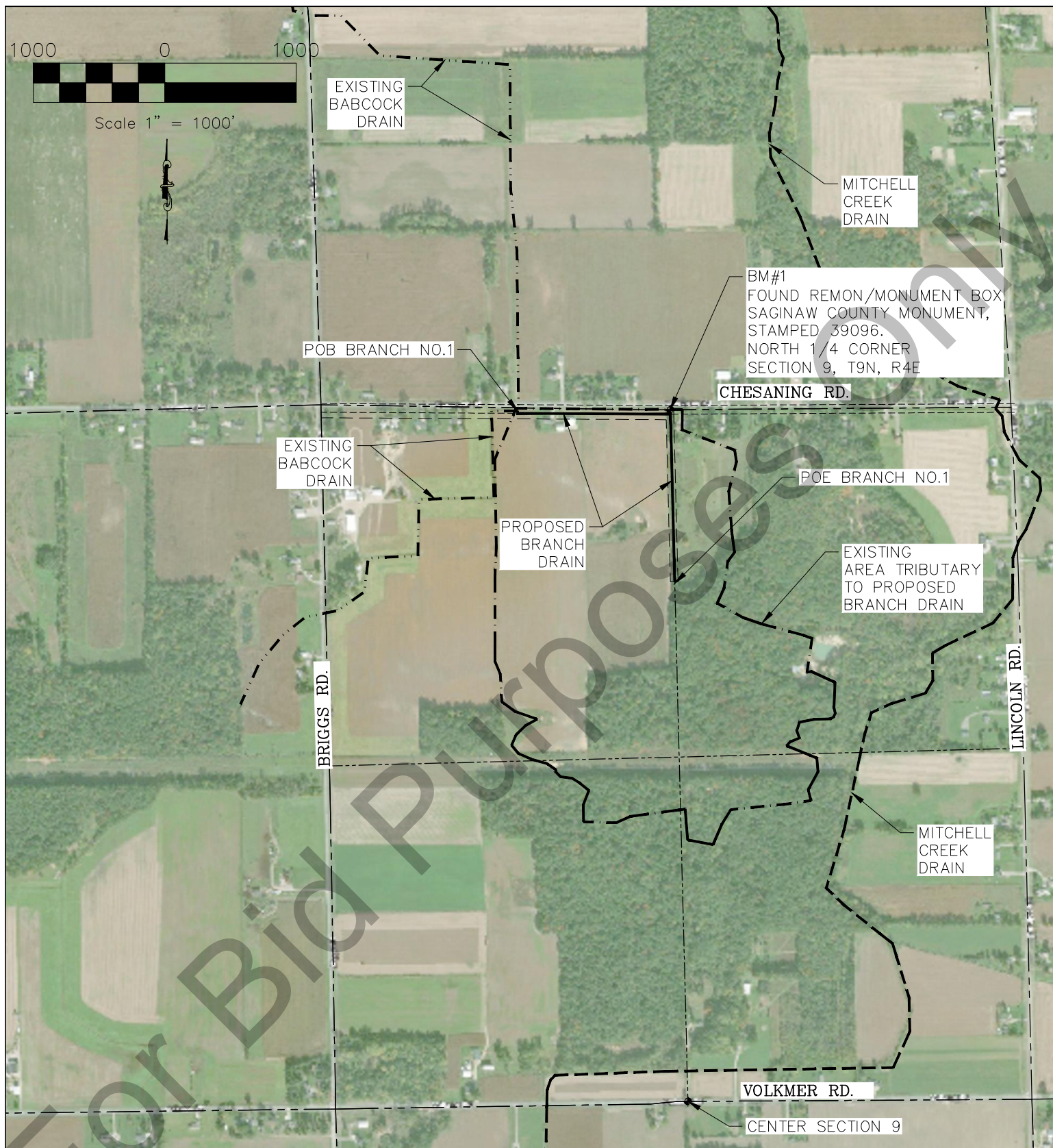
Issued By:



Whitney Hoppes
Environmental Quality Analyst
Bay City District Office
Water Resources Division
989-355-4959

Attached: Plans

cc: Maple Grove Township Clerk
Saginaw County Drain Commissioner
Saginaw County Clerk
Saginaw CEA
Alan Boyer- Agent



BABCOCK DRAIN
COVER

— LOCATION MAP

APPLICANT:

BRIAN J. WENDLING
SAGINAW CO. PUBLIC WORKS
COMMISSIONER

WATERWAY:

BABCOCK DRAIN

CITY:

MAPLE GROVE TWP

COUNTY:

SAGINAW

NUMBER OF SHEETS:

1 OF 7

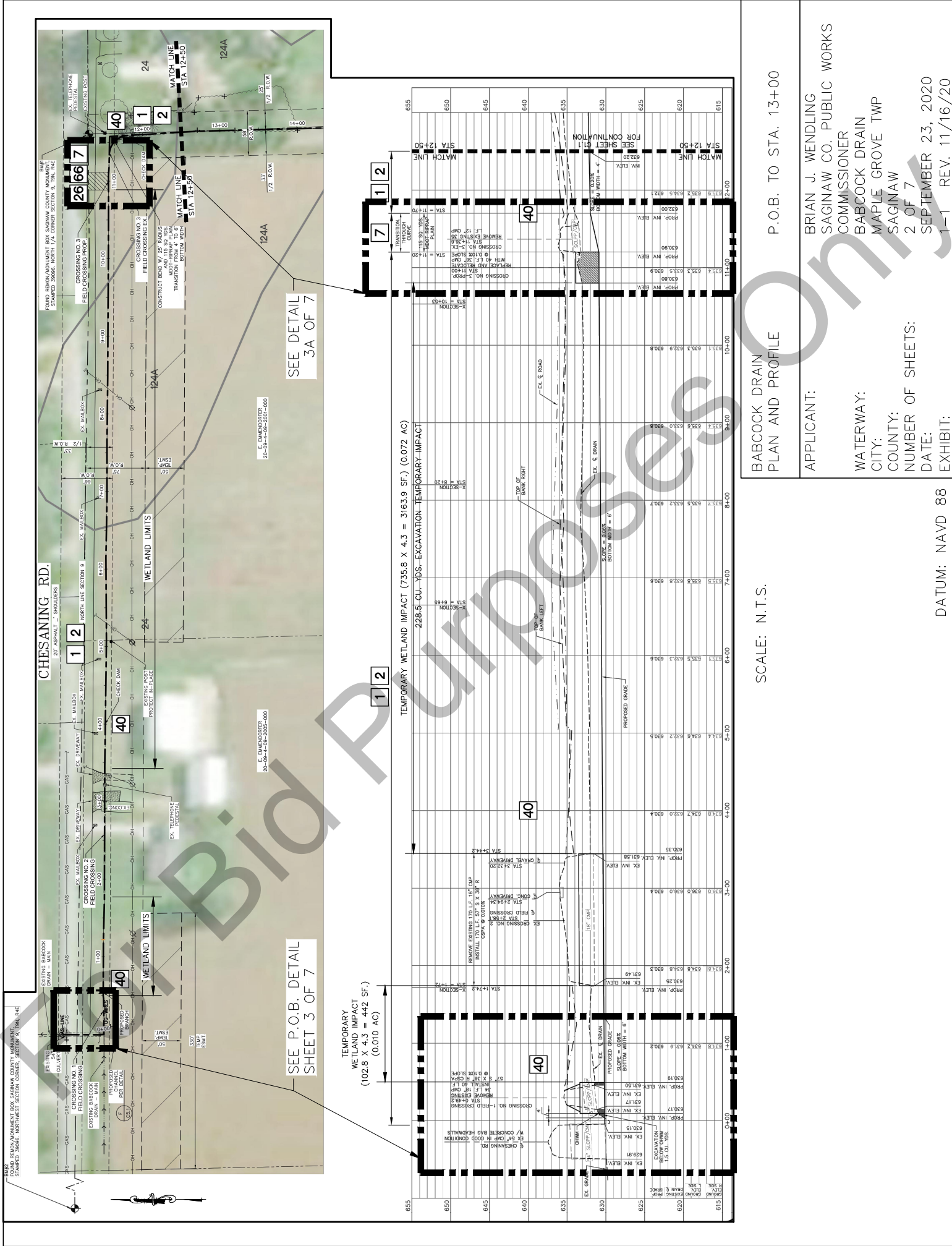
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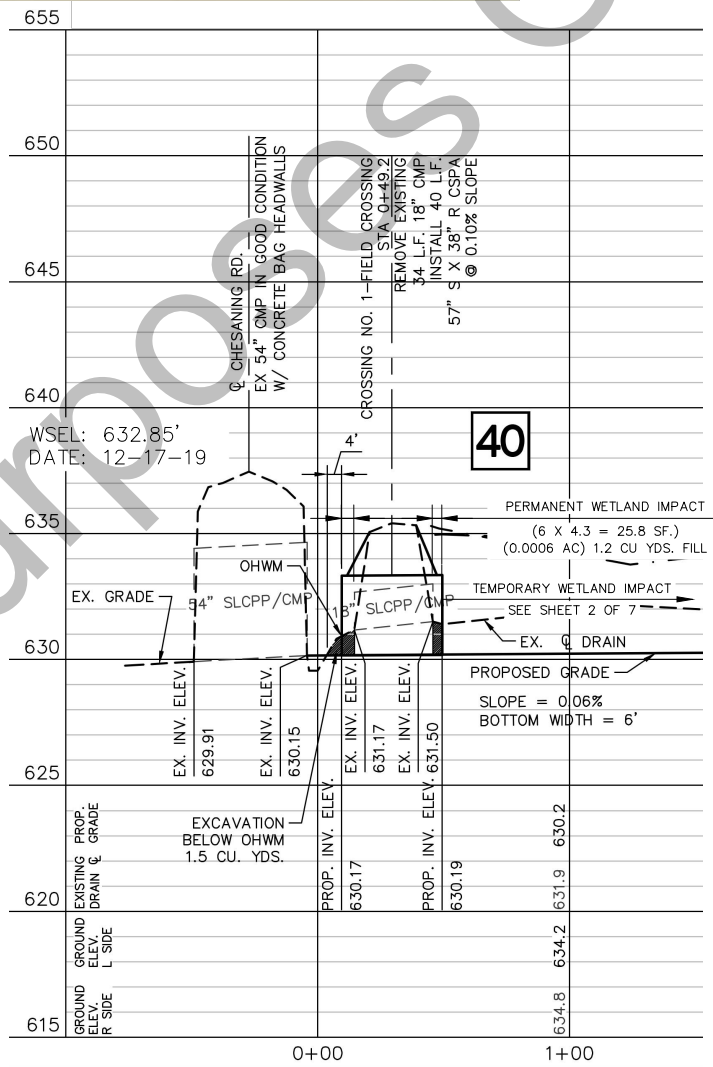
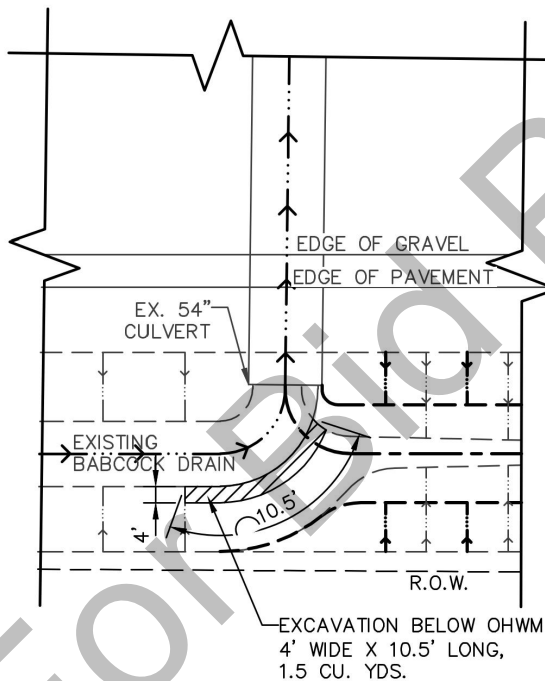
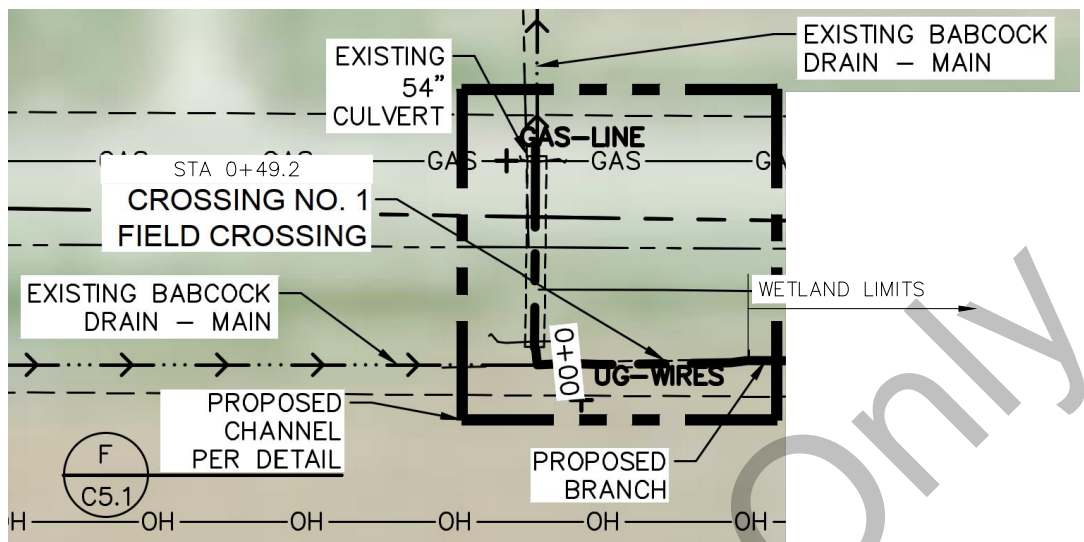
SEPTEMBER 23, 2020

EXHIBIT:

1-1 REV. 11/05/20

DATUM: NAVD 88





SCALE: N.T.S.

PROPOSED CHANNEL DETAIL

F
C5.1

SCALE: N.T.S.

DATUM: NAVD 88

BABCOCK DRAIN
PLAN AND PROFILE

— P.O.B. DETAIL

APPLICANT:

BRIAN J. WENDLING
SAGINAW CO. PUBLIC WORKS
COMMISSIONER

WATERWAY:

BABCOCK DRAIN

CITY:

MAPLE GROVE TWP

COUNTY:

SAGINAW

NUMBER OF SHEETS:

3 OF 7

DATE:

SEPTEMBER 23, 2020

EXHIBIT:

1-1 REV. 11/16/20

FOUND REMON/MONUMENT BOX SAGINAW COUNTY MONUMENT,
STAMPED 39096. NORTH 1/4 CORNER SECTION 9, T9N, R4E

CROSSING NO. 3
FIELD CROSSING PROP.

26 66 7

EX. TELEPHONE
PEDESTAL

EXISTING POST

10+00

11+00

WETLAND LIMITS

40

CROSSING NO. 3
FIELD CROSSING EX.
TO BE REMOVED

CHECK DAM

1

24

2

CONSTRUCT BEND W/ 25' RADIUS
AND 115 SQ YDS.
MDOT-RIPRAP PLAIN
TRANSITION FROM 4' TO 6'
BOTTOM WIDTH

MATCH LINE
STA 12+50

MATCH LINE
STA 12+50

7

SCALE: N.T.S.

TRANSITION.
THROUGH
CURVE

STA = 11+20

STA = 11+70

CROSSING NO. 3-PROP.
STA 11+00
REPLACE AND RELOCATE
WITH 40 L.F. 36" CMP
@ 0.10% SLOPE

115 SQ. YDS.
MDOT-RIPRAP
PLAIN

CROSSING NO. 3-EX.
STA 11+36.6
REMOVE EXISTING 35'
L.F. 12" CMP

40

TEMPORARY
WETLAND IMPACT
SEE SHEET 2 OF 7

PERMANENT WETLAND IMPACT
(40 X 4.3 = 172 SF.)
(0.0039 AC) 13.4 CU YDS. FILL

SCLPP/CMP

SLC
BOT

PROP. INV. ELEV.
630.80
633.5
630.9

PROP. INV. ELEV.
630.90

PROP. INV. ELEV.
632.00

11+00

SCALE: N.T.S.

DATUM: NAVD 88

BABCOCK DRAIN
PLAN AND PROFILE

- STA. 11+20 DETAIL

APPLICANT:

BRIAN J. WENDLING
SAGINAW CO. PUBLIC WORKS
COMMISSIONER

WATERWAY:

BABCOCK DRAIN

CITY:

MAPLE GROVE TWP

COUNTY:

SAGINAW

NUMBER OF SHEETS:

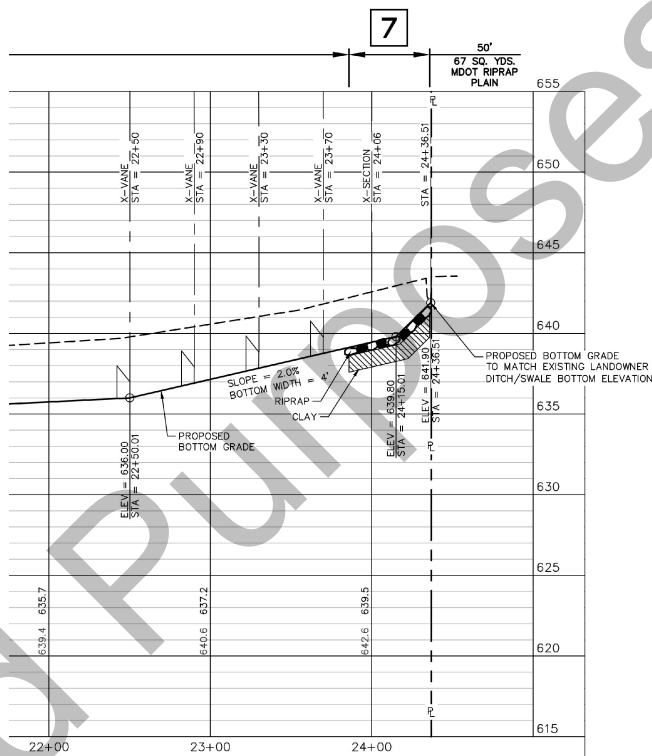
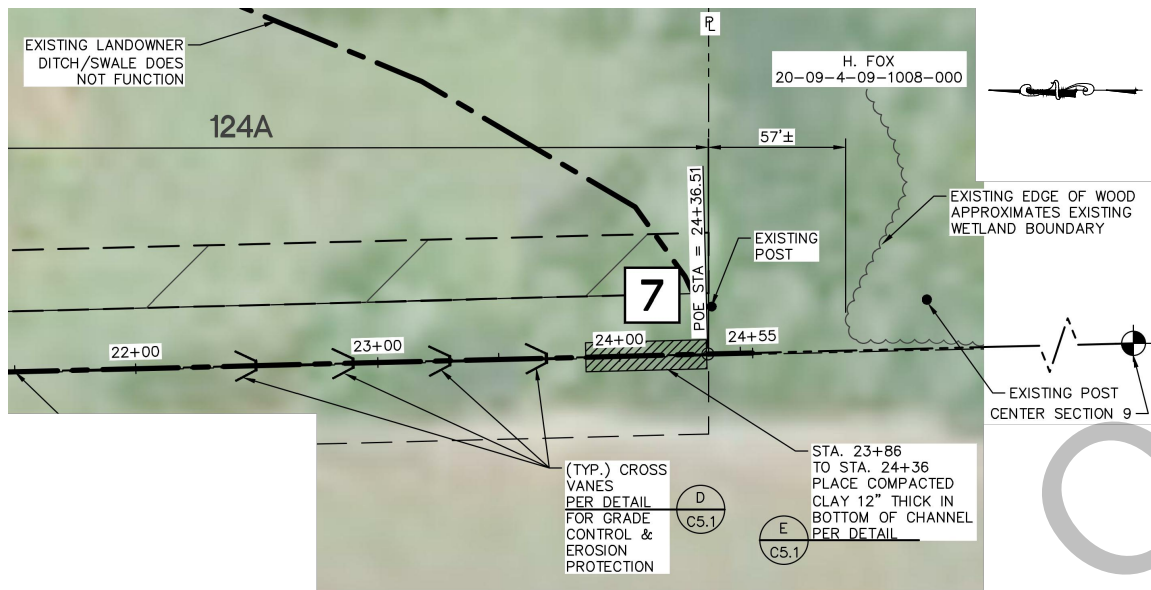
3A OF 7

DATE:

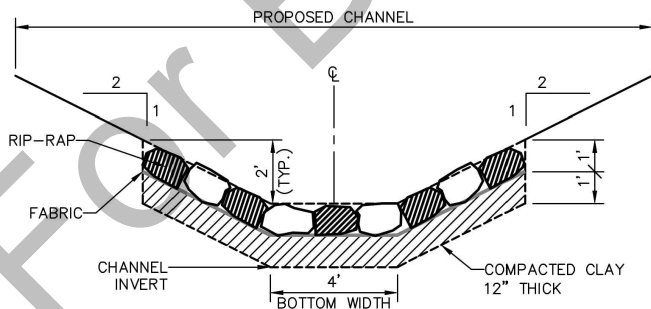
NOVEMBER 3, 2020

EXHIBIT:

1-1 REV. 11/16/20



SCALE: N.T.S.



CLAY BOTTOM DETAIL E

STA. 23+86 TO STA. 24+36 C5.1

SCALE: N.T.S.

DATUM: NAVD 88

BABCOCK DRAIN
PLAN AND PROFILE

- P.O.E. DETAIL

APPLICANT:

BRIAN J. WENDLING
SAGINAW CO. PUBLIC WORKS
COMMISSIONER

WATERWAY:

BABCOCK DRAIN

CITY:

MAPLE GROVE TWP

COUNTY:

SAGINAW

NUMBER OF SHEETS:

5 OF 7

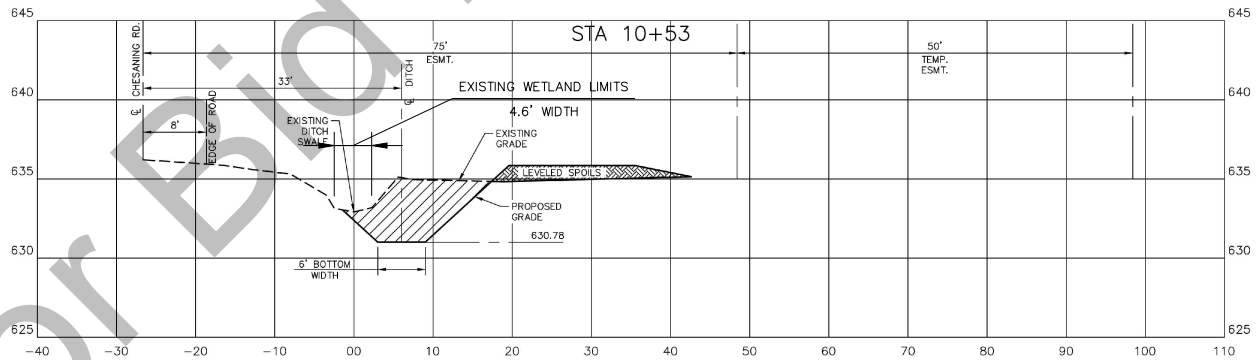
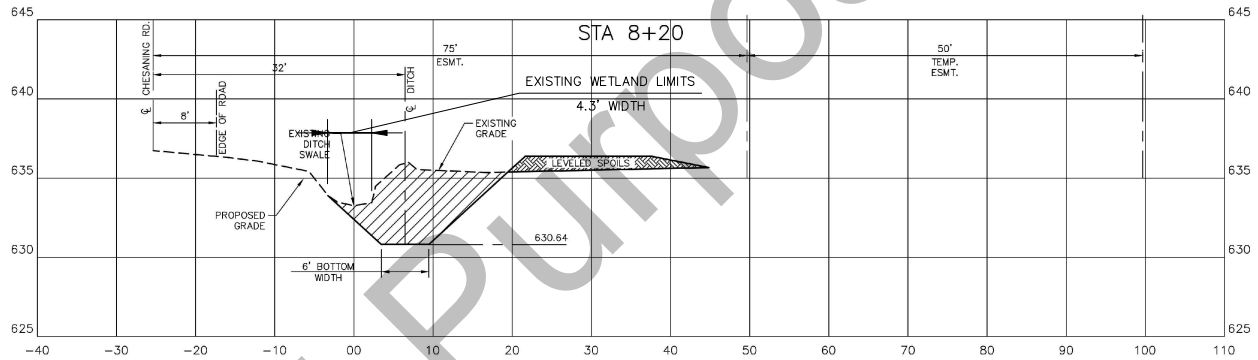
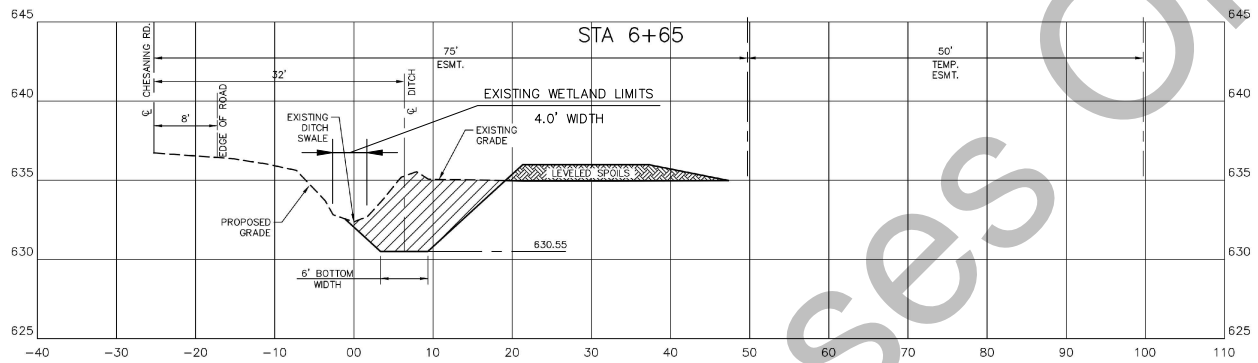
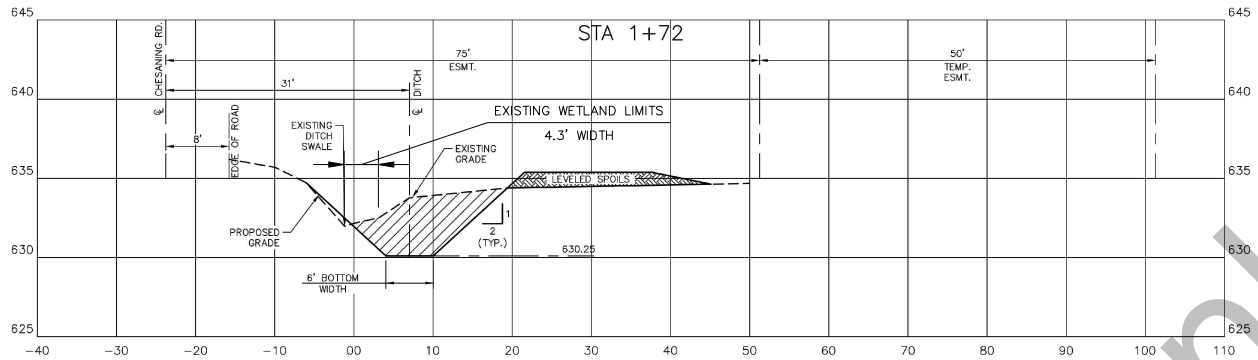
DATE:

SEPTEMBER 23, 2020

EXHIBIT:

1-1

CROSS SECTIONS (LOOKING UPSTREAM)



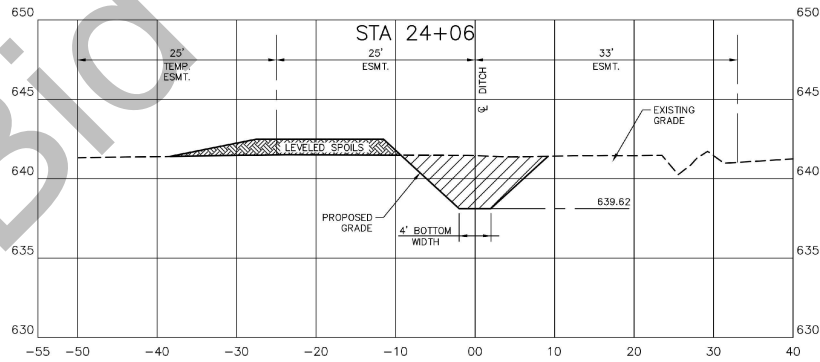
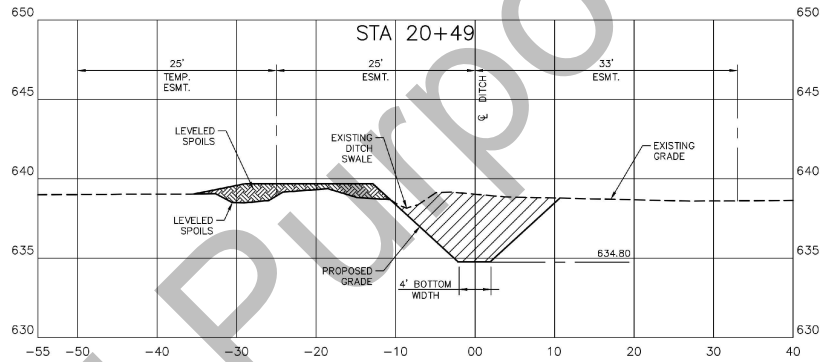
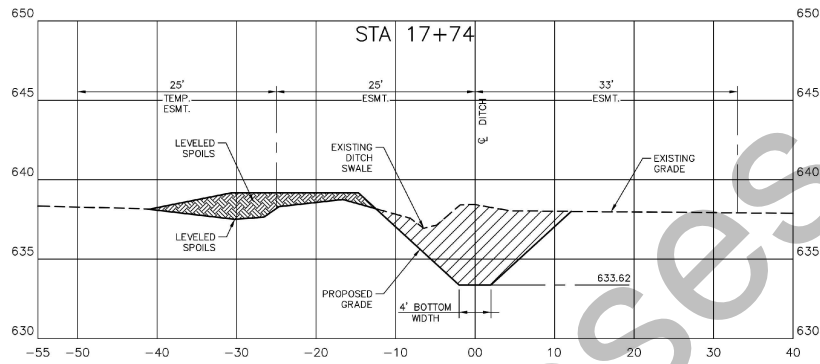
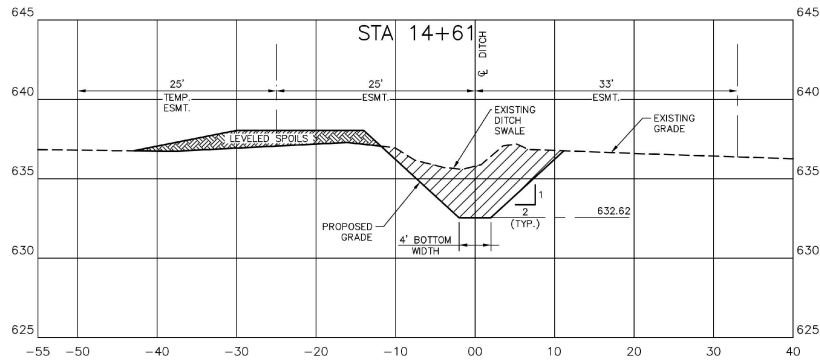
SCALE: N.T.S.

BABCOCK DRAIN
CROSS SECTIONS

APPLICANT:	BRIAN J. WENDLING SAGINAW CO. PUBLIC WORKS COMMISSIONER
WATERWAY:	BABCOCK DRAIN
CITY:	MAPLE GROVE TWP
COUNTY:	SAGINAW
NUMBER OF SHEETS:	6 OF 7
DATE:	SEPTEMBER 23, 2020
EXHIBIT:	1-1 REV. 11/16/20

DATUM: NAVD 88

CROSS SECTIONS (LOOKING UPSTREAM)



SCALE: N.T.S.

BABCOCK DRAIN CROSS SECTIONS

APPLICANT:

BRIAN J. WENDLING
SAGINAW CO. PUBLIC WORKS
COMMISSIONER

WATERWAY:

BABCOCK DRAIN

CITY:

MAPLE GROVE TWP

COUNTY:

SAGINAW

NUMBER OF SHEETS:

7 OF 7

DATE:

SEPTEMBER 23, 2020

EXHIBIT:

1-1

DATUM: NAVD 88

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For Bid Purposes Only