
**BIDDING DOCUMENTS
FOR THE**

O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN

**SAGINAW COUNTY PUBLIC WORKS COMMISSIONER
RICHLAND TOWNSHIP
SAGINAW COUNTY, MICHIGAN**

Prepared By:
SPICER GROUP, INC.
SAGINAW, MICHIGAN
September, 2016

Plans Included

DR-3170 - 1 thru 8

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ADVERTISEMENT

O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN

SAGINAW COUNTY PUBLIC WORKS COMMISSIONER
SAGINAW COUNTY, MICHIGAN

Bids will be received by the office of the **SAGINAW COUNTY PUBLIC WORKS COMMISSIONER** at their office at 111 S. Michigan Avenue, Saginaw, MI, 48602, until 10:00 a.m. on the 20th day of October, 2016 for the **O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN**. The following are approximate quantities with appurtenances:

DIVISION I - O'GRADY DRAIN & BEIER DRAIN

OPEN CHANNEL

1.	1,902	Lin. Ft.	Open Channel Construction - O'Grady Drain 4' Drain Bottom, Slope Both Sides 2:H to 1:V (Sta. 0+00 to Sta. 19+02)
2.	4,352	Lin. Ft.	Channel Cleanout - Beier Drain (Sta. 159+12 to Sta. 202+64)
3.	1,902	Lin. Ft.	Spoil Leveling - 2 Sides
4.	4,352	Lin. Ft.	Spoil Leveling - 1 Side
5.	1	Lump Sum	Site Clearing

OPEN CHANNEL

No. 10 Station 167+17 - Farm Crossing - D & R Kenny Trusts R E LLC

6.	1	Lump Sum	Remove Existing Crossing
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No. 11 Station 195+37 - Farm Crossing - D & R Kenny Trusts R E LLC & Lang, T & M

7.	1	Lump Sum	Remove Existing Crossing
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SOIL EROSION AND SEDIMENT CONTROL

8.	50	Sq. Yds.	Miscellaneous Riprap
9.	50	Lin. Ft.	Plain Riprap Spillway
10.	50	Lin. Ft.	Grass Spillway
11.	50	Lin. Ft.	Plain Riprap Toe of Slope Protection
12.	100	Sq. Yds.	North American Green C-350
13.	2	Each	12" & 10" Tile Outlet
14.	2	Each	8" & 6" Tile Outlet
15.	4	Each	4" & Smaller Tile Outlet
16.	8	Each	Plain Riprap Splash Pad
17.	1	Lump Sum	Seeding, Fertilizing, and Mulching
18.	1	Lump Sum	Cleanup and Restoration

DIVISION II - BEIER DRAIN & MCCLELLAN RUN DRAIN - MAINTENANCE

OPEN CHANNEL

19.	14,707	Lin. Ft.	Channel Cleanout - McClellan Run Drain (Sta. 0+00 to Sta. 147+07) (Includes Cleanout of Existing Crossings)
20.	2,513	Lin. Ft.	Channel Cleanout - Beier Drain (Sta. 147+07 to Sta. 159+12) (Sta. 202+64 to Sta. 215+72) (Includes Cleanout of Existing Crossings)
21.	16,645	Lin. Ft.	Spoil Leveling - 1 Side
22.	575	Lin. Ft.	Spoil Hauling (Sta. 15+337 to Sta. 15+912)

23. 1 Lump Sum Site Clearing

CROSSINGS

No. 1 Station 8+84 - Farm Crossing - Dorr, R Trust

24. 1 Lump Sum Remove Existing Crossing

SOIL EROSION AND SEDIMENT CONTROL

25. 50 Sq. Yds. Miscellaneous Riprap
26. 20 Lin. Ft. Plain Riprap Toe of Slope Protection
27. 20 Lin. Ft. Grass Spillway
28. 5 Each 18" CMP - Maintenance Access Culvert
(2-2/3" x 1/2" Corr., 14 Ga.)
(40 Lin. Ft. Each)
29. 4 Each 12" & 10" Tile Outlet
30. 8 Each 8" & 6" Tile Outlet
31. 28 Each 4" & Smaller Tile Outlet
32. 40 Each Plain Riprap Splash Pad
33. 1 Lump Sum Seeding, Fertilizing, and Mulching
34. 1 Lump Sum Cleanup and Restoration

Each proposal shall be accompanied by certified check or bidder's bond in the amount of 5% of the bid. Checks shall be drawn payable to **O'Grady, Beier and McClellan Run Drains Drainage District** as security for the acceptance of the Contract and subject to the conditions stated in the Instructions to Bidders. **Performance and Payment Bonds will not be required.**

Plans, proposal forms and specifications may be obtained by qualified Bidders at no charge at the website of **the Saginaw County Public Works Commissioner**, <http://www.saginawcounty.com/PublicWorks/Current-Projects.aspx> beginning on the **3rd day of October, 2016**. Project to be completed by **December 16, 2016**. **The Owner intends on issuing the Notice to Proceed once crops are harvested from farm fields affected by the project.**

OWNER: SAGINAW COUNTY PUBLIC WORKS COMMISSIONER
BY: BRIAN J. WENDLING

INSTRUCTIONS TO BIDDERS

I. Defined Terms:

Terms used in these Instructions to Bidders, which are defined in the Standard General Conditions of the Construction Contract, have the meanings assigned to them in General Conditions. The term "Bidder" means one who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids). The term "Issuing Office" means the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

II. Copies of Bidding Documents:

- A. Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from Professional. The deposit will not be refunded.
- B. Complete sets of the Bidding Documents must be used in preparing Bids; neither OWNER nor Professional assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- C. OWNER and Professional 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.

III. Qualifications of Bidders:

To demonstrate qualifications to perform Work, each Bidder must be prepared to submit within five days of OWNER's request written evidence, such as financial data, previous experience, present commitments and other such data as may be called for below (or in the Supplementary Conditions). Each bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of contract.

IV. Examination of Contract Documents and Site:

- A. It is the responsibility of each Bidder before submitting a Bid to:
 - 1. To examine the Contract Documents thoroughly and other related data identified in the Bidding Documents (including "technical data" referred to below);
 - 2. To visit the site and 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;
 - 3. To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
 - 4. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data and;
 - 5. To promptly notify Professional of all conflicts, errors, ambiguities, or discrepancies, which Bidder has discovered in or between the Contract Documents and such other related documents.

- B. Reference is made to the Supplementary Conditions, if applicable, for identification of:
1. Those reports of explorations and tests of subsurface conditions at or contiguous to the site which have been utilized by Professional in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such reports but not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.
 2. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by Professional in preparation of the Contract Documents. Bidder may rely upon the accuracy of the "technical data" contained in such drawings but not upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purposes of bidding or construction.
 3. OWNER will make copies of such reports and drawings available to any Bidder on request. Those reports and drawings are not part of the Contract Documents. Bidder is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.
- C. Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER and Professional by owners of such Underground Facilities or others, and OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- D. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2 and 4.3 of the General Conditions.
- E. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, test and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- F. On request in advance, OWNER will provide each Bidder access to the site to conduct such explorations, examinations, investigations, studies, and tests 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 activities.
- G. 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 or storage of materials and equipment are to be provided by CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

- H. 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 the specific means, methods, techniques, sequences or procedures of construction as may be shown or indicated in or expressly required by the Contract Documents, and the Bidder has given Professional written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by Professional 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.

V. **Interpretations and Addenda:**

- A. All questions about the meaning or intent of the Contract Documents are to be directed to Professional. Interpretations or clarifications considered necessary by Professional in response to such questions will be issued by Addenda via email and publication on the Owner's website to all parties recorded by Professional as having received the Bidding Documents. Questions received less than three days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- B. OWNER or Professional may also issue addenda to modify the Bidding Documents as deemed advisable.

VI. **Bid Security:**

- A. Each Bid must be accompanied by Bid security made payable to O'Grady Drain, Beier Drain and McClellan Run Drain Drainage Districts in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified check or a Bid Bond issued by a surety meeting requirements of Article 5, Bonds and Insurance, Paragraph 5.1, of the General Conditions section of the Bidding Documents.
- B. 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 fifteen days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or one day longer than Bid hold period after the Bid opening, whereupon Bid security furnished by such Bidders may be returned.

VII. **Contract Time:**

The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time is defined in the General Conditions) are set forth in the Bid Form and the Agreement.

VIII. **Liquidated Damages:**

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

IX. Substitute or "Or-Equal" Items:

- A. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or "or-equal" item. No item of material or equipment will be considered by Professional as a substitute or "or-equal" unless written request for approval has been submitted by Bidder and has been received by Professional at least fifteen days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed item including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or Work that incorporation of the proposed item would require shall be included. The burden of proof of the merit of the proposed item is upon Bidder. Professional's decision of approval or disapproval of a proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

IX. Subcontractors, Suppliers and Others:

- A. If the OWNER requires the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall, within seven 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. An experience statement shall accompany such list with pertinent information regarding similar projects and other evidence of qualifications for each such Subcontractor, Supplier, person, or organization if requested by OWNER. An OWNER or Professional who, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, may on or 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 (or 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 proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Suppliers, or other person or organization listed and to whom OWNER and Professional do not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and Professional subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.8 of the General Conditions.
- B. In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to OWNER those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with OWNER's written consent.
- C. No CONTRACTOR shall be required to employ any Subcontractor, Supplier, other person or organization against whom CONTRACTOR has reasonable objection.

X. Bid Form:

- A. The Bid Form is included with the Bidding Documents; additional copies may be obtained from Professional (or the issuing office). Unless noted otherwise in the Bid Form, only the Bid Form and its specified documents shall be submitted.

- B. All blanks on the Bid Form must be completed in ink or by typewriter.
- C. 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 and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided. State contractor license number, if any, must also be shown.
- D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- E. All names must be typed or printed below the signature.
- F. The Bid shall contain an acknowledgment of receipt of all issued Addenda (the numbers of which must be filled in on the Bid Form).
- G. The address and telephone number for communications regarding the Bid must be shown.
- H. The "Legal Status of Bidder" data must be filled out and included with the Bid Form.

XI. Submission of Bids:

- A. Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of the Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. Each prospective Bidder is furnished one copy of Bidding Documents with one separate unbound copy of each of the Bid Form and the Bid Bond. Bidder may retain the Bidding Documents. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and other required documents. Faxed bids shall not be accepted.

XII. Modification and Withdrawal of Bids:

- A. 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.
- B. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

XIII. Opening of Bids:

Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place indicated in the Advertisement or Invitation to Bid. An abstract of the amounts of the base Bids and major alternatives (if any) will be made available to Bidders after the opening of Bids.

XIV. Bids to Remain Subject to Acceptance:

All bids will remain subject to acceptance for ninety (90) 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.

XV. Award of Contract:

- A. 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 between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- B. In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- C. OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Bid Form. OWNER also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- D. OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.
- E. If the contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.
- F. If the contract is to be awarded, OWNER will notify the Successful Bidder during the Bid hold period.

XVI. Contract Security and Insurance:

Article 5.1 of the Bonds and Insurance section of the General Conditions set forth OWNER's requirements as to Insurances. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required Insurance papers.

XVII. Signing of Agreement:

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 fifteen days thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Insurances. Thereafter, OWNER shall deliver one fully signed counterpart to CONTRACTOR.

XVIII. Retainage:

Provisions concerning retainage and CONTRACTOR's rights to deposit securities in lieu of retainage are set forth in the Agreement.

responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto. BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

- e. 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.
- f. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- g. BIDDER has given PROFESSIONAL written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by PROFESSIONAL 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.
- h. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Estimated Quantity	Unit	Description	Unit Price	Amount
<u>DIVISION I - O'GRADY DRAIN & BEIER DRAIN</u>					
<u>OPEN CHANNEL</u>					
1.	1,902	Lin. Ft.	Open Channel Construction - O'Grady Drain 4' Drain Bottom, Slope Both Sides 2:H to 1:V (Sta. 0+00 to Sta. 19+02)	\$ _____	\$ _____
2.	4,352	Lin. Ft.	Channel Cleanout - Beier Drain (Sta. 159+12 to Sta. 202+64)	\$ _____	\$ _____
3.	1,902	Lin. Ft.	Spoil Leveling - 2 Sides	\$ _____	\$ _____
4.	4,352	Lin. Ft.	Spoil Leveling - 1 Side	\$ _____	\$ _____
5.	1	Lump Sum	Site Clearing	<u>Lump Sum</u>	\$ _____

OPEN CHANNEL

No. 10 Station 167+17 - Farm Crossing - D & R Kenny Trusts R E LLC

6.	1	Lump Sum	Remove Existing Crossing	<u>Lump Sum</u>	\$ _____
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No. 11 Station 195+37 - Farm Crossing - D & R Kenny Trusts R E LLC & Lang, T & M

7.	1	Lump Sum	Remove Existing Crossing	<u>Lump Sum</u>	\$ _____
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SOIL EROSION AND SEDIMENT CONTROL

8.	50	Sq. Yds.	Miscellaneous Riprap	\$ _____	\$ _____
9.	50	Lin. Ft.	Plain Riprap Spillway	\$ _____	\$ _____
10.	50	Lin. Ft.	Grass Spillway	\$ _____	\$ _____
11.	50	Lin. Ft.	Plain Riprap Toe of Slope Protection	\$ _____	\$ _____
12.	100	Sq. Yds.	North American Green C-350	\$ _____	\$ _____
13.	2	Each	12" & 10" Tile Outlet	\$ _____	\$ _____
14.	2	Each	8" & 6" Tile Outlet	\$ _____	\$ _____
15.	4	Each	4" & Smaller Tile Outlet	\$ _____	\$ _____
16.	8	Each	Plain Riprap Splash Pad	\$ _____	\$ _____
17.	1	Lump Sum	Seeding, Fertilizing, and Mulching	<u>Lump Sum</u>	\$ _____
18.	1	Lump Sum	Cleanup and Restoration	<u>Lump Sum</u>	\$ _____
19.	1	Lump Sum	Traffic Control	<u>Lump Sum</u>	\$ _____

DIVISION I TOTAL AMOUNT OF BID----- \$ _____

DIVISION II - BEIER DRAIN & MCCLELLAN RUN DRAIN

OPEN CHANNEL

20.	14,707	Lin. Ft.	Channel Cleanout - McClellan Run Drain (Sta. 0+00 to Sta. 147+07) (Includes Cleanout of Existing Crossings)	\$ _____	\$ _____
21.	2,561	Lin. Ft.	Channel Cleanout - Beier Drain (Sta. 147+07 to Sta. 159+12) (Sta. 202+64 to Sta. 216+20) (Includes Cleanout of Existing Crossings)	\$ _____	\$ _____
22.	16,693	Lin. Ft.	Spoil Leveling - 1 Side	\$ _____	\$ _____
23.	575	Lin. Ft.	Spoil Hauling (Sta. 153+37 to Sta. 159+12)	\$ _____	\$ _____
24.	1	Lump Sum	Site Clearing	<u>Lump Sum</u>	\$ _____

CROSSINGS

No. 1 Station 8+84 - Farm Crossing - Dorr, R Trust

25. 1 Lump Sum Remove Existing Crossing Lump Sum \$ _____

SOIL EROSION AND SEDIMENT CONTROL

26. 50 Sq. Yds. Miscellaneous Riprap \$ _____ \$ _____

27. 20 Lin. Ft. Plain Riprap Toe of Slope Protection \$ _____ \$ _____

28. 20 Lin. Ft. Grass Spillway \$ _____ \$ _____

29. 2 Each 18" CMP - Maintenance Access Culvert
(2-2/3" x 1/2" Corr., 14 Ga.)
(40 Lin. Ft. Each) \$ _____ \$ _____

30. 4 Each 12" & 10" Tile Outlet \$ _____ \$ _____

31. 8 Each 8" & 6" Tile Outlet \$ _____ \$ _____

32. 28 Each 4" & Smaller Tile Outlet \$ _____ \$ _____

33. 40 Each Plain Riprap Splash Pad \$ _____ \$ _____

34. 1 Lump Sum Seeding, Fertilizing, and Mulching Lump Sum \$ _____

35. 1 Lump Sum Cleanup and Restoration Lump Sum \$ _____

36. 1 Lump Sum Traffic Control Lump Sum \$ _____

DIVISION II TOTAL AMOUNT OF BID----- \$ _____

ALTERNATE BID ITEMS

DIVISION I

No. 10 Station 167+17 - Farm Crossing - D & R Kenny Trusts R E LLC

37. 60 Lin. Ft. 60" CMP (Aluminized)
(2-2/3" x 1/2" Corr., 10 Ga.)
(Bevel Ends 2 Hor. to 1 Vert.) \$ _____ \$ _____

No. 11 Station 195+37 - Farm Crossing - D & R Kenny Trusts R E LLC & Lang, T & M

38. 56 Lin. Ft. 54" CMP (Aluminized)
(2-2/3" x 1/2" Corr., 10 Ga.)
(Bevel Ends 2 Hor. to 1 Vert.) \$ _____ \$ _____

DIVISION II

No. 1 Station 8+84 - Farm Crossing - Dorr, R Trust

39. 64 Lin. Ft. 128" x 83" CMPA (Aluminized)
(3" x 1" Corr., 12 Ga.)
(Bevel Ends 2 Hor. to 1 Vert.) \$ _____ \$ _____

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 Agreement.

5. Total bid amounts from each Division will be read separately and Divisions will be awarded independently.
6. BIDDER agrees that the Work will be substantially complete on or before **December 16, 2016** after the date when the Contract Times commence to run, as provided in paragraph 2.3 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions on or before **June 12, 2017**.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

7. In addition, BIDDER accepts:
 - a. That the OWNER will provide, through the PROFESSIONAL, reference points for construction and the CONTRACTOR will be responsible for laying out (staking) the work sufficient for construction purposes in accordance with applicable parts of paragraph 4.4 of the General Conditions and the Supplementary Conditions.
 - b. That all inspection and observation of the work deemed necessary by the PROFESSIONAL and as required by the OWNER shall be performed by the PROFESSIONAL's Resident Project Representative (RPR) whose limitations of authority and responsibilities are generally described in paragraph 9.13 of the General Conditions.
8. 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. If required, BIDDER's Qualification Statement with supporting data.
9. Communications concerning this Bid shall be addressed to: **Nicolas D. Czerwinski, P.E., Project Manager, 230 S. Washington, Saginaw, MI 48607-1286, Phone; (989) 754-4717; Fax; (989) 754-4440; nickc@spicergroup.com**
10. Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions or Instructions.

11. Dated and signed at _____ State of _____
 this _____ day of _____ 2016
 Name of Bidder: _____
 By: _____
 (Authorized Officer's Name)
 Its: _____
 (Officer's Title)
 Business Address: _____

 (Zip Code)
 Telephone Number: (____) _____ Fax Number: (____) _____

If BIDDER is: (Note to BIDDER - Fill out appropriate section.)

AN INDIVIDUAL

By _____
(Individual's Name)

doing business as _____

A PARTNERSHIP

By _____
(Firm Name)

(General Partner)

A CORPORATION

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Name of Person Authorized to Sign)

(Title)

(Corporate Seal)

Attest _____

Date of Qualification to do business is _____

A JOINT VENTURE

By _____
(Name)

(Address)

By _____
(Name)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

PROJECTS UNDER ACT NO. 524 OF PUBLIC ACTS OF 1980

General Information

1. Interest will be paid on retainage in accordance with the Act.
2. The Contractor may request reasonable interest on accounts past due on prior progress payments which can be included in the next request for payment.
3. Retainage will be in accordance with the Act, Subsections 3 and 4.
4. All matters described in Subsection 3 of the Act shall be submitted to the decision of an agent at the option of the Owner.

Retainage. The retainage for the project shall be as follows:

1. For projects with Payment Schedule No. 1, the retainage shall be in accordance with Act No. 524.
2. For projects with Payment Schedule No. 2, the retainage shall be ten percent (10%) of the contract price.

Payment. All requests for payment shall be in compliance with Act No. 524 of Public Acts of 1980. Construction contracts having a dollar value of less than \$30,000 or a contract that provides for three or fewer payments shall be exempt from the Act.

The requests for payments shall be made in accordance with one of the following Payment Schedules:

Payment Schedules

1. Not later than the 25th day of each calendar month, the Owner will make partial payment to the Contractor on the basis of a duly certified, approved estimate of the work performed during the preceding calendar month by the Contractor, but the Owner will retain a percentage as stated in Act No. 524 of the amount of each such estimate until final completion and acceptance of all work covered by this contract.
2. Payment requests shall be limited to three or fewer payments less ten percent (10%) retained on each payment request, except for the final payment, which shall include all amounts previously retained. Payment requests will only be permitted after completion of fifty percent (50%) of the project, after seventy-five percent (75%) of the project and after one hundred percent (100%) of the project is completed and accepted. No payment request will be made within 30 consecutive days of a previous request.

Act No. 524

Public Acts of 1980

Approved by Governor

January 29, 1981

STATE OF MICHIGAN

80TH LEGISLATURE

REGULAR SESSION OF 1980

Introduced by Rep. Ryan

ENROLLED HOUSE BILL NO. 5541

AN ACT to provide for the terms of certain construction contracts with certain public agencies; to regulate the payment and retainage of payments on construction contracts with certain public agencies; and to provide for the resolution of certain disputes.

The People of the State of Michigan enact:

Sec. 1. As used in this act:

(a) "Agent" means the person or persons agreed to or selected by the contractor and the public agency pursuant to section 4(2).

(b) "Architect or professional engineer" means an architect or professional engineer licensed under Act No. 299 of the Public Acts of 1980, being sections 339.10 to 339.2601 of the Michigan Compiled Laws, and designated by a public agency in a construction contract to recommend progress payments.

(c) "Construction contract" or "contract" means a written agreement between a contractor and a public agency for the construction, alternation, demolition, or repair of a facility, other than a contract having a dollar value of less than \$30,000.00 or a contract that provides for 3 or fewer payments.

(d) "Contract Documents" means the Construction Contract; Instructions To Bidders, Proposal; Conditions of the Contract; Performance Bond; Labor and Material Bond; Drawings; Specifications; all Addenda issued before execution of the construction contract and all modifications issued subsequently.

(e) "Contractor" means an individual, sole proprietorship, partnership, corporation, or joint venture that is a party to a construction contract with a public agency.

(f) "Facility" means a building, utility, road, street, boulevard, parkway, bridge, ditch, drain, levee, dike, sewer, park, playground, or other structure or work that is paid for with public funds or a special assessment.

(g) "Progress payment" means a payment by a public agency to a contractor work in place under the terms of a construction contract.

(h) "Public agency" means this state, or a county, city, township, village, assessment district, or other political subdivision, corporation, commission, agency, or authority created by law. However, public agency does not include the state transportation department, a school district, junior or community college, the Michigan state housing development authority created in Act No. 346 of the Public Acts of 1966, as amended, beings sections 125.1401 to 125.1496 of the Michigan Compiled Laws, and a municipal electric utility or agency. "Assessment district" means the real property within a distinct area upon which special assessments are levied or imposed for the construction, reconstruction, betterment, replacement or repair of a facility to be paid for by funds derived from those special assessments imposed or levied on the benefited real property.

(i) "Retainage" or "retained funds" means the amount withheld from a progress payment to a contractor pursuant to section 3.

Sec. 2

(1) The construction contract shall designate a person representing the contractor who will submit written requests for progress payments, and a person representing the public agency to whom requests for progress payments are to be submitted. The written requests for progress payments shall be submitted to the designated person in a manner and at such times as provided in the construction contract.

(2) The processing of progress payments by the public agency may be deferred by the public agency until work having a prior sequence, as provided in the contract documents, is in place and is approved.

(3) Each progress payment requested, including reasonable interest if requested under subsection (4), shall be paid within 1 of the following time periods, whichever is later.

(a) Thirty days after the architect or professional engineer has certified to the public agency that work is in place in the portion of the facility covered by the applicable request for payment in accordance with the contract documents.

(b) Fifteen days after the public agency has received the funds with which to make the progress payment from a department or agency of the federal or state government, if any funds are to come from either of those sources.

(4) Upon failure of a public agency to make a timely progress payment pursuant to this section, the person designated to submit requests for progress payments may include reasonable interest on amounts past due in the next request for payment.

Sec. 3

(1) To assure proper performance of a construction contract by the contractor, a public agency may retain a portion of each progress payment otherwise due as provided in this section.

(2) The retainage shall be limited to the following:

(a) Not more than 10% of the dollar value of all work in place until work is 50% in place.

(b) After the work is 50% in place, additional retainage shall not be withheld unless the public agency determines that the contractor is not making satisfactory progress, or for other specific cause relating to the contractor's performance under the contract. If the public agency so determines, the public agency may retain not more than 10% of the dollar value of work more than 50% in place.

(3) The retained funds shall not exceed the pro rata share of the public agency's matching requirement under the construction contract and shall not be commingled with other funds of the public agency and shall be deposited in an interest bearing account in a regulated financial institution in this state wherein all such retained funds are kept by the public agency which shall account for both retainage and interest on each construction contract separately. A public agency is not required to deposit retained funds in an interest bearing account if the retained funds are to be provided under a state or federal grant and the retained funds have not been paid to the public agency.

(4) Except as provided in section 4(7) and (8), retainage and interest earned on retainage shall be released to a contractor together with the final progress payment.

(5) At any time after 94% of work under the contract is in place and at the request of the original contractor, the public agency shall release the retainage plus interest to the original contractor only if the original contractor provides to the public agency an irrevocable letter of credit in the amount of the retainage plus interest, issued by a bank authorized to do business in this state, containing terms mutually acceptable to the contractor and the public agency.

Sec. 4

(1) The construction contract shall contain an agreement to submit those matters described in subsection (3) to the decision of an agent at the option of the public agency.

(2) If a dispute regarding a matter described in subsection (3) arises, the contractor and the public agency shall designate an agent who has background, training, and experience in the construction of facilities similar to that which is the subject of the contract, as follows:

(a) In an agreement reached within 10 days after a dispute arises.

(b) If an agreement cannot be reached within 10 days after a dispute arises, the public agency shall designate an agent who has background, training, and experience in the construction of facilities similar to that which is the subject of the contract and who is not an employee of the agency.

(3) The public agency may request dispute resolution by the agent regarding the following:

(a) At any time during the term of the contract, to determine whether there has been a delay for reasons that were within the control of the contractor, and the period of time that delay has been caused, continued, or aggravated by actions of the contractor.

(b) At any time after 94% of work under the contract is in place, whether there has been an unacceptable delay by the contractor in performance of the remaining 6% of work under the contract. The agent shall consider the terms of the contract and the procedures normally followed in the industry and shall determine whether the delay was for failure to follow reasonable and prudent practices in the industry for completion of the project.

(4) This dispute resolution process shall be used only for the purpose of determining the rights of the parties to retained funds and interest earned on retained funds and is not intended to alter, abrogate, or limit any rights with respect to remedies that are available to enforce or compel performance of the terms of the contract by either party.

(5) The agent may request and shall receive all pertinent information from the parties and shall provide an opportunity for an informal meeting to receive comments, documents, and other relevant information in order to resolve the dispute. The agent shall determine the time, place and procedure for the informal meeting. A written decision and reasons for the decision shall be given to the parties within 14 days after the meeting.

(6) The decision of the agent shall be final and binding upon all parties. Upon application of either party, the decision of the agent may be vacated by order of the circuit court only upon a finding by the court that the decision was procured by fraud, duress, or other illegal means.

(7) If the dispute resolution results in a decision.

(a) That there has been a delay as described in subsection (3)(a), all interest earned on retained funds during the period of delay shall become the property of the public agency.

(b) That there has been unacceptable delay as described in subsection (3)(b), the public agency may contract with a subsequent contractor to complete the remaining 6% of work under the contract, and interest earned on retained funds shall become the property of the public agency. A subsequent Contractor under this subdivision shall be paid by the public agency from the following sources until each source is depleted, in the order listed below:

(i) The dollar value of the original contract, less the dollar value of funds already paid to the original contractor and the dollar value of work for which the original contractor has not received payment.

(ii) Retainage from the original contractor, or funds made available under a letter of credit provided under section 3(5).

(iii) Interest earned on retainage from the original contractor, or funds made available under a letter of credit provided under section 3(5).

(8) If the public agency contracts with a subsequent contractor as provided in subsection (7)(b), the final progress payment shall be payable to the original contractor within the time period specified in section 2(3). The amount of the final progress payment to the original contractor shall not include interest earned on retained funds. The public agency may deduct from the final progress payment all expenses of contracting with the subsequent contractor. This act shall not impair the right of the public agency to bring an action or to otherwise enforce a performance bond to complete work under a construction contract.

Sec. 5

(1) Except as provided in subsection (2), this act shall apply only to a construction contract entered into after the effective date of this act.

(2) For a construction contract entered into before the effective date of this act, the provisions of this act may be implemented by a public agency, through a contract amendment, upon the written request of the contractor, with such consideration as the public agency considers adequate.

Sec. 6

This act shall take effect January 1, 1983. AGREEMENT

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2016 by and between
SAGINAW COUNTY PUBLIC WORKS COMMISSIONER (hereinafter called OWNER) and
(hereinafter called CONTRACTOR).

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

O'Grady Drain, Beier Drain and McClellan Run Drain

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Work - The entire completed construction of the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

The Project for which the Work under the Contract Documents is being done may be the whole or only a part is generally described as follows: Project - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Article 2. PROFESSIONAL

The Project has been designed by: **Spicer Group, Inc.**

who is hereinafter called PROFESSIONAL and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to PROFESSIONAL in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions per the times as indicated in the Bid Form, Section 5.

3.2 *Liquidated Damages.* OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **five hundred dollars (\$500.00)** for each day that expires after the time specified in Section 3.1 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 specified in Section 3.1 or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER **five hundred dollars (\$500.00)** for each day that expires after the time specified in Section 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 4.1 below:

- 4.1 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 times the estimated quantity of that item as indicated in this paragraph 4.1:

SEE EXHIBIT "A"

Item No.	Estimated Quantity	Unit	Description	Unit Price	Amount
----------	--------------------	------	-------------	------------	--------

TOTAL CONTRACT AMOUNT ----- \$ _____

As provided in paragraph 11.9 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by PROFESSIONAL as provided in paragraph 9.10 of the General Conditions. Unit prices have been computed as provided in paragraph 11.9 of the General Conditions.

Article 5. PAYMENT PROCEDURES

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

- 5.1 In accordance with Payment Schedule No. 2 of Act 524 of Public Acts of 1980, Payment requests shall be limited to three or fewer payments less ten percent (10%) retained on each payment request, except for the final payment, which shall include all amounts previously retained. Payment requests will only be permitted after completion of fifty percent (50%) of the project, after seventy-five percent (75%) of the project and after one hundred percent (100%) of the project is completed and accepted. No payment request will be made within 30 consecutive days of a previous request.
- 5.2 *Final Payment.* Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by PROFESSIONAL as provided in Section 14.13.

Article 6. INTEREST

All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest as allowed by law at the place of the Project.

Article 7. CONTRACTOR'S REPRESENTATIONS

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

- 7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda) and other related data identified in the Bidding Documents including "technical data".
- 7.2 CONTRACTOR has visited the site, conducted an alert, heads-up, eyes-open reasonable 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 or furnishing of the Work.
- 7.3 CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.

- 7.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface or physical conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified, if any, in the General Conditions as provided in paragraph 4.2.1. CONTRACTOR accepts the determination set forth in paragraph 4.2.2 of the General Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and Professional 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. CONTRACTOR 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 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 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.
- 7.5 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.
- 7.6 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.
- 7.7 CONTRACTOR has given PROFESSIONAL written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by PROFESSIONAL is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS.

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

- 8.1 This Agreement.
- 8.2 Exhibits to this Agreement.
- 8.4 Notice to Proceed.
- 8.5 General Conditions.
- 8.6 Specifications contained herein.
- 8.7 Drawings as listed on this document's Title Page.
- 8.8 Addenda.
- 8.9 CONTRACTOR's Bid.
- 8.10 Documentation submitted by CONTRACTOR prior to Notice of Award.
- 8.11 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.5 and 3.6 of the General Conditions.

The documents listed in paragraphs 8.2 et seq. above are deemed attached to this Agreement.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.5 and 3.6 of the General Conditions.

Article 9. MISCELLANEOUS

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

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

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

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

9.5 OTHER PROVISIONS.

None

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

This Agreement will be effective on _____, 2016 (which is the Effective Date of the Agreement).

OWNER: Saginaw County Public Works Commissioner

CONTRACTOR:

By: _____
Brian J. Wendling

By: _____

Attested by: _____

Attested by: _____

Address for giving notices:

Address for giving for notices:

Brian J. Wendling
Saginaw County Public Works Commissioner
111 South Michigan Avenue
Saginaw, MI 48602

NOTICE OF AWARD

Dated:

TO:

PROJECT: **O’Grady Drain, Beier Drain and McClellan Run Drain**

OWNER's CONTRACT NO.: **123475SG2016**

CONTRACT FOR: **O’Grady Drain, Beier Drain and McClellan Run Drain
Saginaw County, Michigan**

You are notified that your Bid dated _____, 2016 for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a contract for **O’Grady Drain, Beier Drain and McClellan Run Drain, Saginaw County, Michigan.**

The Contract Price of your contract is _____ (\$_____).

Four (4) copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within fifteen (15) days of the date of this Notice of Award, that is by: _____.

1. You must deliver to Spicer Group, Inc. **three (3)** fully executed counterparts of the Agreement including the Construction Performance Bond, the Construction Payment Bond, and the Certificates of Insurance.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders (paragraph 18) and General Conditions (paragraph 5.1).

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

Within ten days after you comply with the above conditions, OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached. Construction will commence upon issuance of Notice to Proceed, which is estimated to be in early September.

SPICER GROUP, INC. on behalf of

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

By: _____
Nicholas D. Czerwinski, P.E.
Project Manager

ACCEPTANCE OF AWARD

By: _____

Copy to PROFESSIONAL

Date _____

NOTICE TO PROCEED

Dated:

TO:

PROJECT: O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN

OWNER's CONTRACT No.: 123475SG2016

**CONTRACT FOR: O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN
SAGINAW COUNTY, MICHIGAN**

You are notified that the contract Times under the above contract will commence to run on _____, 2016. By the date, you are to start performing your obligations under the contract Documents. In accordance with Article 3 of the Agreement the dates of Substantial completion and completion and readiness for final payment are December 16, 2016 and June 12, 2017.

Before you may start any Work at the site, the General conditions provides that you and Owner must each deliver to the other (with copies to PROFESSIONAL and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the contract Documents.

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

(add other requirements)

(OWNER)

By: _____
Brian J. Wendling
Saginaw County Public Works Commissioner

ACCEPTANCE OF AWARD

By: _____

Copy to PROFESSIONAL

DATE

EJCDC No. 1910-23 (1990 Edition)
Prepared by the Engineers Joint Contract Documents committee and endorsed by the Associated General Contractors of America.

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GENERAL CONDITIONS

ARTICLE 1—DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

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

1.2. *Agreement*—The written contract between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.3. *Application for Payment*—The form accepted by PROFESSIONAL which is to be used in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

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

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

1.6. *Bidding Documents*—The advertisement or invitation to Bid, instructions to bidders, the Bid form and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

1.7. *Bidding Requirements*—The advertisement or invitation to Bid, instructions to bidders and the Bid form.

1.8. *Bonds*—Performance and Payment bonds and other instruments of security.

1.9. *Change Order*—A document recommended by PROFESSIONAL, which is signed by CONTRACTOR and OWNER and authorizes an

addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

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1.10. *Contract Documents*—The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders and PROFESSIONAL's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1.1 and 4.2.2.2 are not Contract Documents.

1.11. *Contract Price*—The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

1.12. *Contract Times*—The numbers of days or the dates stated in the Agreement: (i) to achieve Substantial Completion and (ii) to complete the Work so that it is ready for final payment as evidenced by PROFESSIONAL's written recommendation of final payment in accordance with paragraph 14.13.

1.13. *CONTRACTOR*—The person, firm or corporation with whom OWNER has entered into the Agreement.

1.14. *defective*—An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to PROFESSIONAL's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

1.15. *Drawings*—The drawings which show the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared or approved by PROFESSIONAL and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.

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

1.17. *Field Order*—A written order issued by PROFESSIONAL which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.

1.18. *General Requirements*—Sections of Division 1 of the Specifications.

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

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

1.21. *Liens*—Liens, charges, security interests or encumbrances upon real property or personal property.

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

1.23. *Notice of Award*—The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.24. *Notice to Proceed*—A written notice given by OWNER to CONTRACTOR (with a copy to PROFESSIONAL) fixing the date on which the Contract Times will commence to run and on which

CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

1.25. *OWNER*—The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

1.26. *Partial Utilization*—Use by OWNER of a substantially completed part of the Work for the purpose Spicer Group, Inc.

for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

1.27. *PCB's*—Polychlorinated biphenyls.

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

1.29. *PROFESSIONAL*—The person, firm or corporation named as such in the Agreement, performing as the Architect, Engineer, or Planner.

1.30. *PROFESSIONAL's Consultant*—A person, firm or corporation having a contract with PROFESSIONAL to furnish services as PROFESSIONAL's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

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

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

1.33. *Resident Project Representative*—The authorized representative of PROFESSIONAL who may be assigned to the site or any part thereof.

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

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

1.36. *Specifications*—Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

1.37. *Subcontractor*—An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.38. *Substantial Completion*—The Work (or a specified part thereof) has progressed to the point where, in the opinion of PROFESSIONAL as evidenced by PROFESSIONAL's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by PROFESSIONAL's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.39. *Supplementary Conditions*—The part of the Contract Documents which amends or supplements these General Conditions.

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

1.41. *Underground Facilities*—All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.42. *Unit Price Work*—Work to be paid for on the basis of unit prices.

1.43. *Work*—The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.44. *Work Change Directive*—A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by PROFESSIONAL, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.

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

ARTICLE 2—PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Times; Notice to Proceed:

2.3. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed.

Starting the Work:

2.4. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the site prior to the date on which the Contract Times commence to run.

Before Starting Construction:

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

2.6 Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to PROFESSIONAL for review:

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

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

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.7. N/A

Preconstruction Conference:

2.8. Within twenty days after the Contract Times start to run, but before any Work at the site is started, a Spicer Group, Inc.

conference attended by CONTRACTOR, PROFESSIONAL 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 2.6, procedures for handling Shop Drawings and other submittals, processing Applications for Payment and maintaining required records.

Initially Acceptable Schedules:

2.9. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, PROFESSIONAL and others as appropriate will be held to review for acceptability to PROFESSIONAL as provided below the schedules submitted in accordance with paragraph 2.6. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until the schedules are submitted to and acceptable to PROFESSIONAL as provided below. The progress schedule will be acceptable to PROFESSIONAL as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Times, but such acceptance will neither impose on PROFESSIONAL responsibility for the sequencing, scheduling or progress of the work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor. CONTRACTOR's schedule of Shop Drawing and Sample submissions will be acceptable to PROFESSIONAL as providing a workable arrangement for reviewing and processing the required submittals. CONTRACTOR's schedule of values will be acceptable to PROFESSIONAL as to form and substance.

**ARTICLE 3—CONTRACT DOCUMENTS:
INTENT, AMENDING, REUSE**

Intent:

3.1. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or

from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by PROFESSIONAL as provided in paragraph 9.4.

3.3. Reference to Standards and Specifications of Technical Societies; Reporting and Resolving Discrepancies:

3.3.1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3.3.2. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, CONTRACTOR shall report it to PROFESSIONAL in writing at once, and, CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.5 or 3.6; provided, however, that CONTRACTOR shall not be liable to OWNER or PROFESSIONAL for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

3.3.3. Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

3.3.3.1. the provisions of any such standard, Spicer Group, Inc.

specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

3.3.3.2. the provisions of any such 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).

No provision of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or PROFESSIONAL, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to OWNER, PROFESSIONAL or any of PROFESSIONAL's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.4. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of PROFESSIONAL as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to PROFESSIONAL any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents.

Amending and Supplementing Contract Documents:

3.5. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.5.1. a formal Written Amendment,

3.5.2. a Change Order (pursuant to paragraph 10.4), or

3.5.3. a Work Change Directive (pursuant to paragraph 10.1).

3.6 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

3.6.1. a Field Order (pursuant to paragraph 9.5),

3.6.2. PROFESSIONAL's approval of a Shop Drawing or Sample (pursuant to paragraphs 6.26 and 6.27), or

3.6.3. PROFESSIONAL's written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:

3.7. CONTRACTOR, and any Subcontractor or Supplier or any other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of PROFESSIONAL or PROFESSIONAL's Consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of OWNER and PROFESSIONAL and specific written verification or adaption by PROFESSIONAL.

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

Availability of Lands:

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a correct statement of record legal title and legal description of lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's lien against Spicer Group, Inc.

such lands in accordance with applicable Laws and Regulations. OWNER shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Protection of Land Monuments and Property Stakes. Land Monuments or lot stakes marking property corners shall not be moved or otherwise disturbed except as directed by PROFESSIONAL. When they occur within the area of concrete base or pavement, they shall be enclosed as specified by the PROFESSIONAL; such work to be paid for by the OWNER. When, in the judgment of the PROFESSIONAL, land monuments or property lot stakes can be saved, all such stakes shall be marked by the CONTRACTOR in a manner agreed to by the PROFESSIONAL and CONTRACTOR, after which the CONTRACTOR shall protect such land monuments or lot stakes from injury. If any land monuments or lot stakes are moved or disturbed by the CONTRACTOR after their locations have been marked in a manner acceptable to the PROFESSIONAL and CONTRACTOR, then the CONTRACTOR agrees that \$500.00 for each and every land monument or lot stake so moved or disturbed may be deducted from any money due to him as a payment to the OWNER for the cost of replacing or resetting said land monument or lot stake.

4.2. ***Subsurface and Physical Conditions:***

It is understood by the CONTRACTOR that if any reports or drawings containing "technical data" were utilized by the PROFESSIONAL regarding subsurface conditions per paragraph 4.2.1.1 of the General Conditions or physical conditions per paragraph 4.2.1.2 of the General Conditions then these reports and drawings would be identified in SC 4.2.1 and no where else in the Contract Documents.

4.2.1. ***Reports and Drawings:*** Reference is made to the Supplementary Conditions for identification of:

4.2.1.1. ***Subsurface Conditions:*** Those reports of explorations and tests of subsurface conditions at or contiguous to the site that have been utilized by PROFESSIONAL in preparing the Contract Documents; and

4.2.1.2. *Physical Conditions:* Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized by PROFESSIONAL in preparing the Contract Documents.

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

4.2.2.1. 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

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

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

4.2.3. *Notice of Differing Subsurface or Physical Conditions:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the site that is uncovered or revealed either:

4.2.3.1 is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is materially inaccurate, or

4.2.3.2. is of such a nature as to require a change in the Contract Documents, or

4.2.3.3. differs materially from that shown or indicated in the Contract Documents, or

4.2.3.4. 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 conditions affected thereby or performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.23), notify OWNER and PROFESSIONAL in writing about such condition. CONTRACTOR shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

4.2.4. *PROFESSIONAL's Review:* PROFESSIONAL will promptly review the pertinent conditions, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto and advise OWNER in writing (with a copy to CONTRACTOR) of PROFESSIONAL's findings and conclusions.

4.2.5. *Possible Contract Documents Change:* If PROFESSIONAL concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in paragraph 4.2.3., a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

4.2.6. *Possible Price and Times Adjustments:* An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of such uncovered or revealed condition causes an increase or decrease in CONTRACTOR's cost of, or time required for performance of, the Work; subject, however, to the following:

4.2.6.1. Such Condition must meet any one or more of the categories described in paragraphs 4.2.3.1 through 4.2.3.4, inclusive;

4.2.6.2. A change in the Contract Documents pursuant to paragraph 4.2.5 will not be an automatic authorization of nor a condition precedent to entitlement to any such adjustment;

4.2.6.3. With respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.10 and 11.9; and

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

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

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

4.2.6.4.3. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.2.3.

If OWNER and CONTRACTOR are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefor as provided in Articles 11 and 12. However, OWNER, PROFESSIONAL and PROFESSIONAL's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages sustained by CONTRACTOR or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.3. Physical Conditions—Underground Facilities:

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

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

4.3.1.2. The cost of all the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all

Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

4.3.2. *Not Shown or Indicated:* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and PROFESSIONAL, PROFESSIONAL will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the Underground Facility. If PROFESSIONAL concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document such consequences. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated.

If OWNER and CONTRACTOR are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Price or Contract Times, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. However, OWNER, PROFESSIONAL and PROFESSIONAL's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages incurred or sustained by

CONTRACTOR on or in connection with any other projects OR anticipated projects.

Reference Points:

4.4. OWNER may provide engineering surveys to establish reference points for construction which in PROFESSIONAL's judgment are necessary to enable

CONTRACTOR to proceed with the Work. CONTRACTOR is referred to Section 6 of the Proposal (Bid Form) for information regarding the type and level or extent of engineering surveys including reference marks and layout that the OWNER may provide. CONTRACTOR shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to PROFESSIONAL whenever any reference point 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 by professionally qualified personnel. CONTRACTOR is responsible for the protection, replacement and relocation of all reference points and layout work (staking) provided by the OWNER or the PROFESSIONAL. If the OWNER or PROFESSIONAL has to return to the site a second time or more to reset reference points or layout work (staking) destroyed or rendered inaccurate as a result of the CONTRACTOR's negligent or careless activities then the cost of the OWNER or PROFESSIONAL to reset the reference points or layout work (staking) shall be deducted from the final progress payment to the CONTRACTOR by the OWNER, if applicable.

4.5. Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material:

4.5.1. OWNER shall be responsible for any Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. OWNER shall not be responsible for any such materials brought to the site by CONTRACTOR, Subcontractor, Suppliers or anyone else for whom CONTRACTOR is responsible.

4.5.2. CONTRACTOR shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23), and (ii) notify OWNER and PROFESSIONAL (and thereafter confirm such notice in writing). OWNER shall promptly consult with PROFESSIONAL concerning the necessity for OWNER to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. CONTRACTOR shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR special written notice; (i) specifying Spicer Group, Inc.

that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided in Articles 11 and 12.

4.5.3. If after receipt of such special 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 such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

4.5.4. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, PROFESSIONAL, PROFESSIONAL's Consultants and the officers, directors, employees, agents, other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) 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, and (ii) nothing in this subparagraph 4.5.4 shall obligate OWNER to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

4.5.5. The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site.

4.5.6. The above procedures outlined in paragraph 4.5 shall be used if the site on which any Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material is uncovered or revealed is owned and controlled by the OWNER. On sites not owned and controlled by the OWNER, the PROFESSIONAL,

OWNER & CONTRACTOR agree that upon uncovering or revealing Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material it will be the OWNER's responsibility to notify the site's property owner of the discovery.

4.6 **Responsibility for Moving of Structures:** Any buildings, poles, conduits, manholes, catchbasins, valve boxes, trees, water mains and services, storm and sanitary sewers, gas mains and services or other structures which in the opinion of the PROFESSIONAL will have to be moved or changed by the CONTRACTOR, in order to permit the proper construction of the work or will be moved or changed by the respective OWNERS, if that is their practice, at the insistence of the OWNER, unless otherwise specifically stated in the contract documents, but any such structures which, in the opinion of the PROFESSIONAL, can be left without being disturbed, shall be left and the CONTRACTOR shall take all necessary precautions for their protection and he will be held fully responsible for their protection. All costs resulting from the moving of such structures shall be borne by the CONTRACTOR and shall be included in the unit prices or lump sums bid for the work.

ARTICLE 5—BONDS AND INSURANCE

Performance, Payment and Other Bonds:

5.1. CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

All insurance required by the Contract Documents to be purchased and maintained by Spicer Group, Inc.

CONTRACTOR shall be obtained from surety or insurance companies that are authorized to transact business in Michigan and are classified at not lower than each of the following:

5.1.1. Best's Key Rating Guide, current edition:
(1) Rating Classification: A-
(2) Financial Size Category: Class V.

5.2. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to OWNER.

5.3. Licensed Sureties and Insurers; Certificates of Insurance:

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

5.3.2. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Insurance Coverages, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain in accordance with paragraph 5.4. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain in accordance with paragraph 5.6 hereof.

CONTRACTOR's Liability Insurance:

5.4. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other

obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.4.1. claims under workers' compensation, disability benefits and other similar employee benefit acts; such as the U.S. Longshore and Harborworkers', Maritime Employment, or Railroad Compensation Act(s), if applicable;

5.4.2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.4.3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

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

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

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

The policies of insurance so required by this paragraph 5.4 to be purchased and maintained shall:

5.4.7. with respect to insurance required by paragraphs 5.4.3 through 5.4.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, PROFESSIONAL, PROFESSIONAL's Consultants and any other persons or entities identified in the Insurance Coverages, all of whom shall be listed as additional insureds, and include coverage for the respective officers and employees of all such additional insureds;

5.4.8. include the specific coverages and be written for not less than the limits of liability provided in the Insurance Coverages or required by Laws or Regulations, whichever is greater;

5.4.9. include completed operations insurance;

5.4.10. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.12, 6.16 and 6.31 through 6.33;

5.4.11. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.3.2 will so provide);

5.4.12. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with paragraph 13.12; and

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

OWNER's Liability Insurance:

5.5. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.4, 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.

Property Insurance:

5.6. CONTRACTOR shall purchase and maintain property insurance upon the Work for any or all insurable portions of the Work at the site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall:

5.6.1. include the interests of OWNER, CONTRACTOR, SubCONTRACTORS, PROFESSIONAL, and PROFESSIONAL's Consultants and also any other persons or entities specifically identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest as an insured or additional insured;

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

5.6.3 include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of PROFESSIONAL's and architects);

5.6.4 by an installation floater covering materials and equipment in transit for incorporation in the Work or stored and secured at the site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment as "materials stored and secured on site" recommended by PROFESSIONAL; and

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

The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.6 shall comply with the requirements of GC-5.8

5.7. Not in this contract.

5.8. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by OWNER will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has Spicer Group, Inc.

been issued and will contain waiver provisions in accordance with paragraph 5.11.

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

5.10. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraphs 5.6, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or written amendment. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.11. **Waiver of Rights:**

5.11.1. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.6 will protect OWNER, CONTRACTOR, Subcontractors, PROFESSIONAL, PROFESSIONAL's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, PROFESSIONAL, PROFESSIONAL's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

5.11.2. In addition, OWNER waives all rights against CONTRACTOR, Subcontractors, PROFESSIONAL, PROFESSIONAL's Consultants and the officers, directors, employees and agents of any of them for:

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

5.11.2.2. loss or damage to the completed Project or part thereof caused by, arising out of or resulting from fire or other insured peril covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.10, after substantial completion pursuant to paragraph 14.8 or after final payment pursuant to paragraph 14.13.

Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in this paragraph 5.11.2 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 any of CONTRACTOR, Subcontractors, PROFESSIONAL, PROFESSIONAL's Consultants and the officers, directors, employees and agents of any of them.

Receipt and Application of Insurance Proceeds:

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest Spicer Group, Inc.

may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

Acceptance of Bonds and Insurance; Option to Replace:

5.14. If either party (OWNER or CONTRACTOR) has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

Partial Utilization—Property Insurance:

5.15. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6—CONTRACTOR'S
RESPONSIBILITIES

Supervision and Superintendence:

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

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and PROFESSIONAL except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications to the superintendent shall be as binding as if given to CONTRACTOR.

Labor, Materials and Equipment

6.3. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. 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 indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and CONTRACTOR will not permit overtime work or the performance of the Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to PROFESSIONAL.

6.4. Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all 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

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furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall be expressly run to the benefit of OWNER. If required by PROFESSIONAL, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable supplier, except as otherwise provided in the Contract Documents.

Progress Schedule:

6.6. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.9 as it may be adjusted from time to time as provided below:

6.6.1. CONTRACTOR shall submit to PROFESSIONAL for acceptance (to the extent indicated in paragraph 2.9) proposed adjustments in the progress schedule that will not change the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

6.6.2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of paragraph 12.1. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.7. Substitutes and "Or-Equal" Items:

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

6.7.1.1. "Or-Equal": If in PROFESSIONAL's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally

equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by PROFESSIONAL as an "or-equal" item, in which case review and approval of the proposed item may, in PROFESSIONAL's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

6.7.1.2. *Substitute Items:* If in PROFESSIONAL's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under subparagraph 6.7.1.1, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided below to allow PROFESSIONAL to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the PROFESSIONAL will include the following as supplemented in the General Requirements and as PROFESSIONAL may decide is appropriate under the circumstances. Request for review of proposed substitute items of material or equipment will not be accepted by PROFESSIONAL from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall first make written application to PROFESSIONAL for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized

estimate of all cost or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by PROFESSIONAL in evaluating the proposed substitute. PROFESSIONAL may require CONTRACTOR to furnish additional data about the proposed substitute.

6.7.1.3. *CONTRACTOR's Expense:* All data to be provided by CONTRACTOR in support of any proposed "or-equal" or substitute item will be at CONTRACTOR's expense.

6.7.2. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to PROFESSIONAL. CONTRACTOR shall submit sufficient information to allow PROFESSIONAL, in PROFESSIONAL's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by PROFESSIONAL will be similar to that provided in subparagraph 6.7.1.2.

6.7.3. *Professional's Evaluation:* PROFESSIONAL will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.7.1.2 and 6.7.2, PROFESSIONAL will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without PROFESSIONAL's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. PROFESSIONAL will record time required by PROFESSIONAL and PROFESSIONAL's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to paragraphs 6.7.1.2. and 6.7.2 and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not PROFESSIONAL accepts a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of PROFESSIONAL and PROFESSIONAL's Consultants for evaluating each such proposed substitute item.

Concerning Subcontractors, Suppliers and Others:

6.8. CONTRACTOR shall not employ and Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom OWNER or PROFESSIONAL may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.1. CONTRACTOR shall be fully responsible to OWNER and PROFESSIONAL for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between OWNER or PROFESSIONAL and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or PROFESSIONAL to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.8.2. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR. CONTRACTOR shall require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with the PROFESSIONAL through CONTRACTOR.

6.9. 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.

6.10. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and PROFESSIONAL. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.6, the agreement between the Spicer Group, Inc.

CONTRACTOR and Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, PROFESSIONAL, PROFESSIONAL's Consultants and all other additional insureds for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.11 Not in this Contract

Patent Fees and Royalties:

6.12. 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 PROFESSIONAL its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, PROFESSIONAL, PROFESSIONAL's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from 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 Document.

Permits:

6.13. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.14 Laws and Regulations:

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

6.14.2. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses and damages caused by, arising out of or resulting therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.3.2.

Taxes:

6.15. 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.

Use of Premises:

6.16. CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. The CONTRACTOR shall assume full responsibility for the safe-guarding and protection of all buildings, poles, conduits, manholes, catchbasins, valve boxes, trees, water mains and services, storm and sanitary sewers, gas mains and services, or other structures which may occur near his work or which in any way may be affected by any of his work under this contract except as otherwise specifically stated in the contract documents. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

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CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless OWNER, PROFESSIONAL, PROFESSIONAL's Consultant and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, PROFESSIONAL or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

6.17. During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

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

Record Documents:

6.19. CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to PROFESSIONAL for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to PROFESSIONAL for OWNER.

Safety and Protection:

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

6.20.1. all persons on the Work site or who may be affected by the Work;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. When working in a roadway or public right-of-way, the CONTRACTOR shall, at all times, so conduct his work as to ensure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the roadway and the protection of persons and property shall be provided by the CONTRACTOR at all times in accordance with the authority which has jurisdiction over the roadway. To that end, the CONTRACTOR shall erect and shall maintain during the continuance of the work, such barricades, lights, signs and other protective devices which comply with the laws of the State of Michigan and the Michigan Manual for Uniform Traffic Control Devices. The CONTRACTOR shall also furnish such watchmen as will effectually prevent any accident in consequence of his work and he shall be liable for all accidents and damages occasioned in any way by his acts of neglect, or by the acts of neglect of his subCONTRACTORS, agents or workers. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or PROFESSIONAL or PROFESSIONAL's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Spicer Group, Inc.

CONTRACTOR or any Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the work shall continue until such time as all the Work is completed and PROFESSIONAL has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

Safety Representative:

6.21. 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.

Hazard Communication Programs:

6.22. 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.

Emergencies:

6.23. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER or PROFESSIONAL, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give PROFESSIONAL prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If PROFESSIONAL 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 to document the consequences of such action.

6.24. Shop Drawings and Samples:

6.24.1. CONTRACTOR shall submit Shop Drawings to PROFESSIONAL for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals (see paragraph 2.9). All submittals will be identified as PROFESSIONAL may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities,

dimensions, specified performance and design criteria, materials and similar data to show PROFESSIONAL the materials and equipment CONTRACTOR proposes to provide and to enable PROFESSIONAL to review the information for the limited purposes required by paragraph 6.26.

6.24.2 CONTRACTOR shall also submit Samples to PROFESSIONAL for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as PROFESSIONAL may require to enable PROFESSIONAL to review the submittal for the limited purposes required by paragraph 6.26. The numbers of each Sample to be submitted will be as specified in the Specifications.

6.25. *Submittal Procedures:*

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

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

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

6.25.1.3. all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

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

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

6.25.3. At the time of each submission, CONTRACTOR shall give PROFESSIONAL specific Spicer Group, Inc.

written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to PROFESSIONAL for review and approval of each such variation.

6.26. PROFESSIONAL will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by PROFESSIONAL as required by paragraph 2.9. PROFESSIONAL'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. PROFESSIONAL's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by PROFESSIONAL, and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval.

6.27. PROFESSIONAL's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called PROFESSIONAL's attention to each such variation at the time of submission as required by paragraph 6.25.3 and PROFESSIONAL has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by PROFESSIONAL relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.25.1.

6.28. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by PROFESSIONAL as required by paragraph 2.9, any related Work performed prior to PROFESSIONAL'S review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

Continuing the Work:

6.29. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.30. CONTRACTOR's General Warranty and Guarantee:

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

6.30.1.1. abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors or Suppliers; or

6.30.1.2. normal wear and tear under normal usage.

6.30.2. 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:

6.30.2.1. observations by PROFESSIONAL;

6.30.2.2. recommendation of any progress or final payment by PROFESSIONAL;

6.30.2.3. the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;

6.30.2.4. use or occupancy of the Work or any part thereof by OWNER;

6.30.2.5. any acceptance by OWNER or any failure to do so;

6.30.2.6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by PROFESSIONAL pursuant to paragraph 14.13;

6.30.2.7. any inspection, test or approval by others; or

6.30.2.8. any correction of *defective* Work by OWNER.

Indemnification:

6.31. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, PROFESSIONAL, PROFESSIONAL's consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage: (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such person or entity.

6.32. In any and all claims against OWNER or PROFESSIONAL or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.31 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 person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

6.33. The indemnification obligations of CONTRACTOR under paragraph 6.31 shall not extend to the liability of PROFESSIONAL and PROFESSIONAL's Consultants, officers, directors,

employees or agents caused by the professional negligence, errors or omissions of any of them.

Survival of Obligations:

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

ARTICLE 7—OTHER WORK

Related Work at Site:

7.1. OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, then: (i) written notice thereof will be given to CONTRACTOR prior to starting any such other work, and (ii) CONTRACTOR may make a claim therefor as provided in Articles 11 and 12 if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

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

CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to PROFESSIONAL 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 so to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or nonapparent defects and deficiencies in such other work.

Coordination:

7.4. If OWNER contracts with others for the performance of other work on the Project at the site, the following will be set forth in Supplementary Conditions:

7.4.1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;

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

7.4.3. the extent of such authority and responsibilities will be provided. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

ARTICLE 8—OWNER'S RESPONSIBILITIES

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

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

8.3. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.4 and 14.13.

8.4. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and drawings of physical conditions in existing structures at or contiguous to the site that have been utilized by PROFESSIONAL in preparing the Contract Documents.

8.5. OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.10.

8.6. OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's rights to terminate services of CONTRACTOR under certain circumstances.

8.9. 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 furnishing or performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.10. OWNER's responsibility in respect of undisclosed Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Materials uncovered or revealed at the site is set forth in paragraph 4.5.

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

ARTICLE 9—PROFESSIONAL'S STATUS DURING CONSTRUCTION

OWNER'S Representative:

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

Visits to Site:

9.2. PROFESSIONAL will make visits to the site at intervals appropriate to the various stages of construction as PROFESSIONAL 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, PROFESSIONAL will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. PROFESSIONAL will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. PROFESSIONAL'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 on-site observations, PROFESSIONAL will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against *defective* Work. PROFESSIONAL's visits and on-site observations are subject to all the limitations on PROFESSIONAL'S authority and responsibility set forth in paragraph 9.13, and particularly, but without limitation, during or as a result of PROFESSIONAL's on-site visits or observations of CONTRACTOR's Work. PROFESSIONAL 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 furnishing or performance of the Work.

Project Representative:

9.3. If OWNER and PROFESSIONAL agree, PROFESSIONAL will furnish a Resident Project Representative to assist PROFESSIONAL in providing more continuous observation of the Work. The

responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.13 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the site who is not PROFESSIONAL's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other person will be as provided in the Supplementary Conditions.

Clarifications and Interpretations:

9.4. PROFESSIONAL will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as PROFESSIONAL may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER or CONTRACTOR believe that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree to the amount or extent thereof, if any, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or Article 12.

Authorized Variations in Work:

9.5. PROFESSIONAL may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR who shall perform the Work involved promptly. If OWNER or CONTRACTOR believes that a Field Order justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree as to the amount or extent thereof, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or 12.

Rejecting Defective Work:

9.6. PROFESSIONAL will have authority to disapprove or reject Work which PROFESSIONAL believes to be *defective*, or that PROFESSIONAL believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. PROFESSIONAL will also have authority to require special inspection or testing of

the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

9.6.1. OWNER will have the authority to reduce the contract's final payment by an amount equal to but not greater than increased identified associated costs incurred by the OWNER due to rejection and correction of defective work above and beyond reasonable budgeted efforts.

Shop Drawings, Change Orders and Payments:

9.7. In connection with PROFESSIONAL's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.

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

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

Determinations for Unit Prices:

9.10. PROFESSIONAL will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. PROFESSIONAL will review with CONTRACTOR the PROFESSIONAL's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). PROFESSIONAL's written decision thereon will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other and to PROFESSIONAL written notice of intention to appeal from PROFESSIONAL's decision and; (i) an appeal from PROFESSIONAL'S decision is taken within the time limits and in accordance with the procedures set forth in Article 16, Dispute Resolution or (ii) if no such Alternate Dispute Resolution Agreement has been entered into, a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to PROFESSIONAL's decision, unless otherwise agreed in writing by OWNER and CONTRACTOR. Such appeal will not be subject to the procedures of paragraph 9.11.

Decisions on Disputes:

9.11. PROFESSIONAL will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of

the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to PROFESSIONAL in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant to PROFESSIONAL and the other party to the Agreement promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to PROFESSIONAL and the other party within sixty days after the start of such occurrence or event unless PROFESSIONAL allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to PROFESSIONAL and the claimant within thirty days after receipt of the claimant's last submittal (unless PROFESSIONAL allows additional time). PROFESSIONAL will render a formal decision in writing within thirty days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. PROFESSIONAL's written decision on such claim, dispute or other matter will be final and binding upon OWNER and CONTRACTOR unless (i) an appeal from PROFESSIONAL's decision is taken within the time limits and in accordance with the procedures set forth in Article 16, Dispute Resolution, or (ii) if no such Alternate Dispute Resolution Agreement has been entered into, a written notice of intention to appeal from PROFESSIONAL's written decision is delivered by OWNER or CONTRACTOR to the other and to PROFESSIONAL within thirty days after the date of such decision and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to such claim, dispute or other matter in accordance with applicable Laws, and Regulations within sixty days of the date of such decision, unless otherwise agreed in writing by OWNER and CONTRACTOR.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, PROFESSIONAL will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by PROFESSIONAL pursuant to paragraphs 9.10 or 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may Spicer Group, Inc.

otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter pursuant to Article 16.

9.13. *Limitations on PROFESSIONAL's Authority and Responsibilities:*

9.13.1. Neither PROFESSIONAL's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by PROFESSIONAL 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 PROFESSIONAL shall create, impose or give rise to any duty owed by PROFESSIONAL to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.

9.13.2. PROFESSIONAL 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 furnishing or performance of the Work. PROFESSIONAL will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3. PROFESSIONAL will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9.13.4. PROFESSIONAL's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by paragraph 14.12 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspection, tests and approvals that the results certified indicate compliance with, the Contract Documents.

9.13.5. The limitations upon authority and responsibility set forth in this paragraph 9.13 shall also apply to PROFESSIONAL's Consultants, Resident Project Representative and assistants.

9.13.6. Insofar as jobsite safety is concerned, the PROFESSIONAL shall be responsible solely for his or her own and his or her employees' activities on the

jobsite, but this shall not be construed to relieve the CONTRACTOR from its responsibility for maintaining a safe jobsite. Neither the professional activities of the PROFESSIONAL, nor the presence of the PROFESSIONAL or his or her employees, subconsultant and SubCONTRACTORS, shall be construed to imply the PROFESSIONAL has any responsibility for methods of work performance, superintendence, sequencing of construction, or safety in, on or about the jobsite. The OWNER and CONTRACTOR agree that the CONTRACTOR is solely responsible for jobsite safety.

ARTICLE 10—CHANGES IN THE WORK

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

10.2. If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefor as provided in Article 11 or Article 12.

10.3. 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 and supplemented as provided in paragraphs 3.5 and 3.6 except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

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

10.4.1 changes in the Work which are (i) ordered by OWNER pursuant to paragraph 10.1, (ii) required because of acceptance of *defective* Work under paragraph 13.13 or correcting *defective* Work under paragraph 13.14, or (iii) agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by PROFESSIONAL pursuant to paragraph 9.11;

provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

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

ARTICLE 11—CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to PROFESSIONAL promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after the start of such occurrence or event (unless PROFESSIONAL allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by PROFESSIONAL in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an

adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

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

11.3.1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.2, inclusive);

11.3.2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2);

11.3.3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2, on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 11.6).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

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

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11.4.2. 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 accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed or furnished 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 PROFESSIONAL, which bids, if any, will be accepted. 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 paragraphs 11.4, 11.5, 11.6 and 11.7. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. 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.

11.4.5. Supplemental costs including the following:

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

11.4.5.2. 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.

11.4.5.3. 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 PROFESSIONAL, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof—all 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.

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

11.4.5.5. 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.

11.4.5.6. 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 and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they 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. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage

and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4—all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

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

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

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

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6. The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or

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

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR's fee shall be fifteen percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the CONTRACTOR's fee shall be five percent;

11.6.2.3. 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 11.4.1, 11.4.2, 11.4.3 and 11.6.2 is that only the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of ten percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and 11.4.2 and that only the CONTRACTOR will be paid a fee of five percent of the amount paid to the Subcontractor;

11.6.2.4. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.5. 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

11.6.2.6. 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 11.6.2.1 through 11.6.2.5, inclusive.

11.7. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to PROFESSIONAL an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in Spicer Group, Inc.

the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to OWNER and PROFESSIONAL. CONTRACTOR agrees that:

11.8.1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the 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.

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

11.9. Unit Price Work:

11.9.1. 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 established unit price for each separately identified item of Unit price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by PROFESSIONAL in accordance with paragraph 9.10.

11.9.2. 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.

ARTICLE 12—CHANGE OF CONTRACT TIMES

12.1. The Contract Times (or Milestones) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice delivered by the party making the claim to the other party and to PROFESSIONAL promptly (but in no event later than thirty days) after the occurrence of the event giving rise

to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless PROFESSIONAL allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times (or Milestones) shall be determined by PROFESSIONAL in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of the paragraph 12.1.

12.2. All time limits stated in the Contract Documents are of the essence of the Agreement.

12.3. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God.

Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.4. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

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

13.1. *Notice of Defects:* Prompt notice of all *defective* Work of which OWNER or PROFESSIONAL have actual knowledge will be given to CONTRACTOR. All *defective* Work may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

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

Tests and Inspections:

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

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

13.4.1. for inspections, tests or approvals covered by paragraph 13.5 below;

13.4.2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and

13.4.3. as otherwise specifically provided in the Contract Documents.

13.5. 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 PROFESSIONAL the required certificates of

inspection, or approval. CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's and PROFESSIONAL's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.

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

13.7. Uncovering Work as provided in paragraph 13.6 shall be at CONTRACTOR's expense unless CONTRACTOR has given PROFESSIONAL timely notice of CONTRACTOR's intention to cover the same and PROFESSIONAL has not acted with reasonable promptness in response to such notice.

Uncovering Work:

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

13.9. If PROFESSIONAL considers it necessary or advisable that covered Work be observed by PROFESSIONAL or inspected or tested by others, CONTRACTOR, at PROFESSIONAL's request, shall uncover, expose or otherwise make available for observation, inspection or testing as PROFESSIONAL may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof,

CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

OWNER May Stop the Work:

13.10. If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

Correction or Removal of Defective Work:

13.11. If required by PROFESSIONAL, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by PROFESSIONAL, remove it from the site and replace it with Work that is not defective. CONTRACTOR shall pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.12. Correction Period:

13.12.1. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with Work that is not *defective*, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

13.12.2. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

13.12.3. Where *defective* Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced under this paragraph 13.12, 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.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to PROFESSIONAL's recommendation of final payment, also PROFESSIONAL) prefers to accept it, OWNER may do so. 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 PROFESSIONAL as to reasonableness). If any such acceptance occurs prior to PROFESSIONAL's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

OWNER May Correct Defective Work:

13.14. If CONTRACTOR fails within a reasonable time after written notice from the PROFESSIONAL to correct *defective* Work or to remove and replace rejected Work as required by PROFESSIONAL in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, Spicer Group, Inc.

construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors and PROFESSIONAL and PROFESSIONAL's Consultants access to the site to enable OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. 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. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestone) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER'S rights and remedies hereunder.

ARTICLE 14—PAYMENTS TO CONTRACTOR AND COMPLETION

Schedule of Values:

14.1. The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to PROFESSIONAL. Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment

14.2. At least twenty days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall consult with PROFESSIONAL and 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 from the supplier, 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 and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

CONTRACTOR's Warranty of Title

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

Review of Applications for Progress Payment:

14.4. PROFESSIONAL will, within ten days after receipt of each application for payment, either indicate in writing a recommendation of payment and present the application to OWNER, or return the application to CONTRACTOR indicating in writing PROFESSIONAL's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment to OWNER with PROFESSIONAL's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

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

14.5.1. the Work has progressed to the point indicated,

14.5.2. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for

Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation), and

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

However, by recommending any such payment PROFESSIONAL will not thereby be deemed to have represented that: (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to PROFESSIONAL in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

14.6. PROFESSIONAL's recommendation of any payment, including final payment, shall not mean that PROFESSIONAL is 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 furnishing or performance of Work, or for any failure of CONTRACTOR to perform or furnish Work in accordance with the Contract Documents.

14.7. PROFESSIONAL may refuse to recommend the whole or any part of any payment if, in PROFESSIONAL's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.5. PROFESSIONAL may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or test, nullify any such payment previously recommended to such extent as may be necessary in PROFESSIONAL's opinion to protect OWNER from loss because:

14.7.1. the Work is defective, or completed Work has been damaged requiring correction or replacement,

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3. OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4. PROFESSIONAL has actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.4 inclusive.

OWNER may refuse to make payment of the full amount recommended by PROFESSIONAL because:

14.7.5. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work,

14.7.6. 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,

14.7.7. there are other items entitling OWNER to a set-off against the amount recommended, or

14.7.8. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.4 inclusive; but OWNER must give CONTRACTOR immediate written notice (with a copy to PROFESSIONAL) stating the reasons for such action and promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

Substantial Completion:

14.8. When CONTRACTOR considers the entire Work ready for its intended use, CONTRACTOR shall notify OWNER and PROFESSIONAL in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that PROFESSIONAL issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and PROFESSIONAL shall make an inspection of the Work to determine the status of completion. If PROFESSIONAL does not consider the Work substantially complete, PROFESSIONAL will notify CONTRACTOR in writing giving the reasons therefor. If PROFESSIONAL considers the Work substantially complete, PROFESSIONAL will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to PROFESSIONAL as to any provisions of Spicer Group, Inc.

the certificate or attached list. If, after considering such objections, PROFESSIONAL concludes that the Work is not substantially complete, PROFESSIONAL will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, PROFESSIONAL considers the Work Substantially complete, PROFESSIONAL will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as PROFESSIONAL believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion PROFESSIONAL will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform PROFESSIONAL in writing prior to PROFESSIONAL's issuing the definitive certificate of Substantial Completion, PROFESSIONAL's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

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

Partial Utilization:

14.10. Use by OWNER at OWNER'S option of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) OWNER, PROFESSIONAL and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and PROFESSIONAL that such part of the Work is substantially complete and request

PROFESSIONAL to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and PROFESSIONAL in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request PROFESSIONAL to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and PROFESSIONAL shall make an inspection of that part of the Work to determine its status of completion. If PROFESSIONAL does not consider that part of the Work to be substantially complete, PROFESSIONAL will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If PROFESSIONAL considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 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.

14.10.2. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

Final Inspection:

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

Final Application for Payment:

14.12. After CONTRACTOR has completed all such corrections to the satisfaction of PROFESSIONAL and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph 5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.4.13, (ii) consent of the surety, if any, to final payment, and (iii) complete and legally effective releases or waivers
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(satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu of such releases or waivers of Liens and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and (ii) all payrolls, material and equipment bills and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

Final Payment and Acceptance:

14.13. If, on the basis of PROFESSIONAL's observation of the Work during construction and final inspection, and PROFESSIONAL's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, PROFESSIONAL is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, PROFESSIONAL will, within ten days after receipt of the final Application for Payment, indicate in writing PROFESSIONAL's recommendation of payment and present the Application to OWNER for payment. At the same time PROFESSIONAL will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, PROFESSIONAL will return the Application 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. Thirty days after the presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance and with PROFESSIONAL's recommendation and notice of acceptability, the amount recommended by PROFESSIONAL will become due and will be paid by OWNER to CONTRACTOR.

14.14. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if PROFESSIONAL so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of PROFESSIONAL, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the

balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to PROFESSIONAL with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Waiver of Claims:

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

14.15.1. a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from *defective* Work appearing after final inspection pursuant to paragraph 14.11, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

14.15.2. a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 15—SUSPENSION OF WORK AND TERMINATION

OWNER May Suspend Work

15.1. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and PROFESSIONAL which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

OWNER May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as adjusted from time to time pursuant to paragraph 6.6);

15.2.2. if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.3. if CONTRACTOR disregards the authority of PROFESSIONAL; or

15.2.4. if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by OWNER arising out of or resulting from completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses and damages incurred by OWNER will be reviewed by PROFESSIONAL as to their reasonableness and when so approved by PROFESSIONAL incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

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

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

15.4.1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

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

15.4.3. for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

15.4.4. for reasonable expenses directly attributable to termination.

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

CONTRACTOR May Stop Work or Terminate:

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or PROFESSIONAL fails to act on any Application for Payment within thirty days after it is submitted or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and PROFESSIONAL, and provided OWNER or PROFESSIONAL do not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.4. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if PROFESSIONAL has failed to act on an Application for Payment within thirty days after it is submitted, or OWNER has failed for thirty days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may upon seven day's written notice to OWNER and PROFESSIONAL stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude CONTRACTOR from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

ARTICLE 16—DISPUTE RESOLUTION

If and to the extent that OWNER and CONTRACTOR have agreed on the method and procedure for resolving disputes between them that may arise under this Agreement, such dispute resolution method and procedure shall be as follows. If no such agreement on the method and procedure for resolving such disputes has been reached, and subject to the provisions of paragraphs 9.10, 9.11, and 9.12, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ALTERNATE DISPUTE RESOLUTION (ADR) AGREEMENT

OWNER and CONTRACTOR hereby agree that Article 16 of the General Conditions to the Agreement between OWNER and CONTRACTOR is amended to include the following agreement of the parties:

16.1 OWNER and CONTRACTOR agree that they shall first submit any and all unsettled claims, counterclaims, disputes and other matters in question between them arising out of or relating to the Contract Documents or the breach thereof ("disputes"), to mediation by the American Arbitration Association under the Construction Industry Mediation Rules of the American Arbitration Association prior to either of them initiating against the other types of demands.

16.1.1 **Agreement of Parties** - Whenever, by stipulation or in their contract, the parties have provided for mediation for existing or future disputes under the auspices of the American Arbitration Association (AAA) or under these Rules, they shall be deemed to have made these Rules, as amended and in effect as of the date of the submission of the dispute, a part of their agreement.

16.1.2 **Initiation of Mediation** - Any party or parties to a dispute may initiate mediation by filing with the AAA a written request for mediation pursuant to these Rules, together with the appropriate administrative fee contained in the Administrative Fee Schedule.

16.1.3 **Request for Mediation** - A request for mediation shall contain a brief statement of the nature of the dispute and the names, addresses, and phone numbers of all parties to the dispute, and those who will represent them, if any, to the mediation. The initiating party shall simultaneously file two (2) copies of the request with the AAA and one copy with every other party to the dispute.

16.1.4 Appointment of Mediator - Upon receipt of a request for mediation, the AAA will appoint a qualified mediator or standing neutral facilitator to serve. Normally, a single mediator will be appointed unless the parties agree otherwise or the AAA determines otherwise. If the agreement of the parties name a mediator or specifies a method of appointing a mediator, that designation or method shall be followed.

16.1.5 Qualifications of a Mediator - Any mediator appointed shall be a member of the AAA's Construction Mediation Panel, with expertise in the area of the dispute and knowledgeable in the mediation process. As an alternative, a standing neutral facilitator for ADR as certified by the Michigan Society of Professional Engineers may be used.

No person shall serve as a mediator in any dispute in which that person has any financial or personal interest in the result of the mediation, except by the written consent of all parties. Prior to accepting an appointment, the prospective mediator shall disclose any circumstances likely to create a presumption of bias or prevent a prompt meeting with the parties. Upon receipt of such information, the AAA shall either replace the mediator or immediately communicate the information to the parties for their comments. In the event the parties disagree as to whether the mediator shall serve, the AAA will appoint another mediator. The AAA is authorized to appoint another mediator if the appointed mediator is unable to serve promptly.

16.1.6 Vacancies - If any mediator shall become unwilling or unable to serve, the AAA will appoint another mediator, unless the parties agree otherwise.

16.1.7 Representation - Any party may be represented by persons of their choice. The names and addresses of such persons shall be communicated in writing to all parties and to the AAA.

16.1.8 Time and Place of Mediation - The mediator shall fix the time of each mediation session. The mediation shall be held at the appropriate regional office of the AAA, or at any other convenient location agreeable to the mediator and the parties, as the mediator shall determine.

16.1.9 Identification of Matters in Dispute - At least ten (10) days prior to the first scheduled mediation session, each party shall provide the mediator with a brief memorandum setting forth its position with regard to the issues that need to be resolved. At the

discretion of the mediator, such memoranda may be mutually exchanged by the parties.

At the first session, the parties will be expected to produce all information reasonably required for the mediator to understand the issue presented. The mediator may require either party to supplement such information.

16.1.10 Authority of Mediator - The mediator does not have authority to impose a settlement upon the parties but will attempt to help the parties reach a satisfactory resolution of their dispute. The mediator is authorized to conduct joint and separate meetings with the parties and to make oral and written recommendations for settlement. Whenever necessary, the mediator may also obtain expert advice concerning technical aspects of the dispute, provide the parties agree and assume the expenses of obtaining such advice. Arrangements for obtaining such advice shall be made by the mediator or the parties, as the mediator shall determine.

The mediator is authorized to end the mediation whenever, in the judgment of the mediator, further efforts at mediation would not contribute to a resolution of the dispute between parties.

16.1.11 Privacy - Mediation sessions are private. The parties and their representatives may attend mediation sessions. Other persons may attend only with the permission of the parties and with the consent of the mediator.

16.1.12 Confidentiality - Confidential information disclosed to a mediator by the parties or by witnesses in the course of the mediation shall not be divulged by the mediator. All records, reports, or other documents received by a mediator while serving in such records or to testify in regard to the mediation in any adversary proceeding or judicial forum.

The parties shall maintain the confidentiality of the mediation and shall not rely on, or introduce as evidence in any arbitral, judicial or other proceedings: (a) views expressed or suggestions made by the other party with respect to a possible settlement of the dispute; (b) admissions made by the other party in the course of the mediation proceedings; (c) proposals made or views expressed by the mediator; (d) the fact that the other party had or had not indicated willingness to accept a proposal for resettlement made by the mediator.

16.1.13 No Stenographic Record - There shall be no stenographic record of the mediation process.

16.1.14 **Termination of Mediation** - The mediation shall be terminated:(a) by the execution of a settlement agreement by the parties; or (b) by a written declaration of the mediator to the effect that further efforts at mediation are no longer worthwhile; or (c) by a written declaration of a party or parties to the effect that the mediation proceedings are terminated.

16.1.15 **Exclusion of Liability** - Neither the AAA nor the mediator is a necessary party in judicial proceedings relating to the mediation.

Neither the AAA nor any mediator shall be liable to any party for any act or omission in connection with any mediation conducted under these Rules.

16.1.16 **Interpretation and Application of Rules** - The mediator shall interpret and apply these Rules insofar as they relate to the mediator's duties and responsibilities. All other Rules shall be interpreted and applied by the AAA.

16.1.17 **Expenses** - The expenses of witnesses for either side shall be paid by the party producing such witnesses. All other expenses of the mediation, including required traveling and other expenses of the mediator and representatives of the AAA, and the expenses of any witness, or the cost of any proofs or expert advice produced at the direct request of the mediator, shall be borne equally by the parties unless they agree otherwise.

16.2 Except as provided in paragraph 16.3 below, no mediation arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including PROFESSIONAL, PROFESSIONAL's Consultant and the officers, directors, agents, employees or consultants of any of them) who is not a part to this contract unless:

16.2.1 the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the mediation and

16.2.2 such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the mediation and which will arise in such proceedings.

16.3 Notwithstanding paragraph 16.2 if a claim, dispute or other matter in question between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the mediation between OWNER and CONTRACTOR hereunder. CONTRACTOR shall include in all subcontracts Spicer Group, Inc.

required by paragraph 6.11 a specific provision whereby the Subcontractor consents to being joined in a mediation between OWNER and CONTRACTOR involving the Work of such subcontract, and consenting to joinder shall not create any claim, right or cause of action in favor of Subcontractor and against OWNER, PROFESSIONAL or PROFESSIONAL's Consultants that does not otherwise exist.

ARTICLE 17—MISCELLANEOUS

Giving Notice:

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

Computation of Time:

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

17.2.1. A calendar day of twenty-four hours measured from midnight to the next midnight will constitute a day.

Notice of Claim:

17.3. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

Cumulative Remedies:

17.4. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.12, 6.16, 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and PROFESSIONAL thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

Professional Fees and Court Costs Included:

17.5. Whenever reference is made to "claims, costs, losses and damages," it shall include in each case, but not be limited to, all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs.

INSURANCE COVERAGES

The insurance required by Article 5 of the General Conditions shall be for the following coverages and shall be not less than the following amounts or greater where required by Laws and Regulations but shall not prevent the CONTRACTOR from requiring additional coverage is necessary and prudent for the particular situation.

<u>WORKERS' COMPENSATION</u>	<u>MINIMUM LIMITS (000's)</u>
Part One: Compensation	Statutory
Part Two: Employers' Liability:	
accident	\$ 100
disease	\$ 100
aggregate disease	\$ 500

COMMERCIAL GENERAL LIABILITY

General Aggregate Limit	\$1,000
Products/Completed Operations Aggregate Limit	\$1,000
Personal/Advertising Injury	\$1,000
Each Occurrence Limit	\$1,000

COMPREHENSIVE AUTOMOBILE LIABILITY

Bodily Injury-Each Occurrence Limit	\$ 500
Property Damage-Each Occurrence Limit	\$ 250

OR

Combined Single Limit	\$1,000
No Fault	Statutory

OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY

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

OR

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
Each Occurrence Limit	\$1,000
(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.

<u>UMBRELLA or EXCESS LIABILITY</u>	\$2,000
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Insurance required by paragraphs 5.4.3 through 5.4.6 inclusive of the General Conditions shall name as named additional insureds:

O'Grady Drain, Beier Drain and McClellan Run Drain Drainage District, Saginaw County Public Works Commissioner, Spicer Group, Inc., Saginaw County Road Commission, Michigan Department of Transportation and Richland Township.

Michigan Department
of Transportation
2020 (02/07)

CERTIFICATE OF INSURANCE FOR PERMITTED ACTIVITIES

IN MICHIGAN DEPARTMENT OF TRANSPORTATION RIGHT OF WAY

ALL INSURANCE INFORMATION MUST BE SUBMITTED ON FORM 2020. ANY OTHER FORM IS INVALID.

The subscribing insurance company certifies that insurance of the types and limits of liability listed below have been issued to the insured named below for the policy period indicated.

Such insurance, here certified, is written in accordance with the company's regular policies and endorsements subject to the company's applicable manuals of rules and rate, except that the insurance shall include, but not be limited to, coverage for: (a) underground damage to facilities due to drilling and excavating with mechanical equipment; and (b) collapse or structural injury to structures due to blasting or explosion, excavation, tunneling, pile driving, cofferdam work, or building moving or demolition.

- (1) The subscribing company agrees to give 30 days prior written notice to the Michigan Department of Transportation in the event of cancellation or reduction in coverage by the Insurance Company for reasons other than nonpayment of premium.
- (2) The subscribing company agrees to give 10 days prior written notice to the Michigan Department of Transportation in the event of cancellation by the Insurance Company for nonpayment of premium.
- (3) The subscribing company agrees to give immediate written notice to the Michigan Department of Transportation in the event the contractor cancels or reduces the coverage of any insurance certified below.

NAME OF INSURED	TELEPHONE NUMBER
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ADDRESS	Street	City	State	Zip Code
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CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY DATES (MM/DD/YY)		CATEGORY	MIN. LIMITS	POLICY AMOUNTS
			EFFECTIVE	EXPIRATION			
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL <input type="checkbox"/> OCCURRENCE				GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG. PERSONAL AND ADV. INJURY EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (Any one fire) MEDICAL EXP(Any one person)		
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>				COMBINED SINGLE LIMIT \$ 1,000,000 BODILY INJURY (Per person) \$ 500,000 BODILY INJURY (Per accident) \$ 1,000,000 PROPERTY DAMAGE \$ 1,000,000		
	EXCESS LIABILITY <input type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> <input type="checkbox"/>		OR		EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000		

ADDITIONAL INSURED:

The State of Michigan, Michigan Transportation Commission, Department of Transportation, and governmental bodies performing permit activities under a maintenance contract, and all officers, agents and employees of all the above, for claims arising out of, under, or by reason of operations covered by the permit issued to the permittee. If applicable, _____ (county) and County Road Commission are also insured.

NAME OF INSURANCE COMPANIES AFFORDING COVERAGE COMPANY LETTER COMPANY LETTER COMPANY LETTER	NAME OF AGENCY ADDRESS
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BY: (Authorized Representative Signature)	TITLE	DATE	TELEPHONE NUMBER
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**NOTICE TO SURETY/INSURANCE COMPANIES
FOR OBTAINING ACCESS TO THE
MDOT PERMIT PERFORMANCE BONDS AND
MDOT CERTIFICATE OF INSURANCE APPLICATION**

Effective February 1, 2010, Certificate of Insurance (form 2020) and/or the Permit Performance Bond must be submitted electronically via the Permit Performance Bond/Certificate of Insurance application system.

However, the Surety and/or Insurance agent is required to register, if they have not previously registered, with our office in order to obtain access to the Permit Performance Bond/Certificate of Insurance application system. Surety and/or Insurance agents may contact Anna Swanson at swansona1@michigan.gov or call 517-373-7680 to register or if you have any questions.

Note: The applicant/contractor does not register for access to this application, Surety/Insurance agents only.

LANDOWNER AGREEMENT FORM

Project Name: O'GRADY DRAIN, BEIER DRAIN AND MCCLELLAN RUN DRAIN

Date:

Contractor's Name:

Address:

Landowner's Name:

Address:

Agreement:

CONTRACTOR

LANDOWNER

By:
(Authorized Signature)

By:
(Authorized Signature)

Date:

Date:

*Renters cannot authorize.

*Landowner agreeing to take spoils must level or remove spoils prior to final completion of project.

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT: O'Grady Drain, Beier Drain and McClellan Run Drain

DATE OF ISSUANCE.....

OWNER: Saginaw County Public Works Commissioner

OWNER's Contract No.: 123475SG2016

CONTRACTORPROFESSIONAL: Spicer Group, Inc.

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

TO: SAGINAW COUNTY PUBLIC WORKS COMMISSIONER

And To.....
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and PROFESSIONAL, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

EJCDC No. 1910-8-D (1990 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

CERTIF.93

From the date of Substantial Completion the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES:

OWNER:

CONTRACTOR:

The following documents are attached to and made a part of this Certificate:

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by PROFESSIONAL on, 2016

PROFESSIONAL

By:
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on, 2016

CONTRACTOR

By:

OWNER accepts this Certificate of Substantial Completion on, 2016

OWNER

By:
(Authorized Signature)

1. **Specifications.** All work performed under this permit must be done in accordance with the plans, specifications, maps and statements filed with the Commission and must comply with the Commission's current requirements and specifications on file at this office. The individual in charge of the work shall have the Permit and the approved plans or sketches in his possession on the job at all times.
2. **Warranty.** Permit Holder shall agree to correct any defects, which can be attributed to the proposed work and may occur in the road right-of-way for a period of one year from the date of completion.
3. **Insurance.** The Permit Holder shall furnish proof of insurance or a protective liability policy naming the Commission as insured for the term of this permit for \$1,000,000.00 personal injury and \$500,000.00 property damage for operations of this permit. Such insurance must be with a carrier acceptable to the Commission and cover a period not less than the term of this permit and shall provide that it cannot be canceled without ten (10) days advance written notice be certified mail with return receipt required to the Commission.
4. **Indemnification.** Permit Holder shall hold harmless and indemnify and keep indemnified the Commission, its officers and employees from all claims, suits and judgments to which the Commission, its officers, or employees maybe subject and for all costs and actual attorney fees which might be incurred on account of injury to persons or damage to property, including property of the Commission, whether due to the negligence of the Permit Holder or the joint negligence of the Permit Holder and the Commission, arising out of the work under this permit, or in connection with work not authorized by this permit, or resulting from failure to comply with the terms of this permit.
5. **MISS DIG.** The Permit Holder must comply with the requirements of Act 53 of Public Acts of 1974, as amended. CALL MISS DIG AT (800)482-7171 AT LEAST SEVENTY TWO (72) HOURS, BUT NOT MORE THAN TWENTY ONE (21) CALENDAR DAYS, BEFORE YOU START WORK. Permit Holder assumes all responsibility for damage to or interruption of underground utilities.
6. **Notification of Start and Completion of Work.** The Permit Holder must notify the Commission at least 24 hours before starting work and must notify the Commission when work is completed.
7. **Safety.** Permit Holder agrees to work under this permit in a safe manner and to keep the area affected by this permit in a safe condition until the work is completed. All work site conditions shall comply with the current issue of Michigan Manual of Uniform Traffic Control Devices.
8. **Obligations of the Permit Holder.** The Permit Holder shall surrender the permit herein applied for; surrender all rights hereunder; cease operations; and remove, alter, relocate at the applicant's own expense the facilities for which this permit is granted whenever ordered to do so by the Commission because of the need for the area covered by this permit for public uses or because of a default in any of the conditions of the permit. Upon failure to remove, alter, relocate or surrender the facilities pursuant to the order of the Commission, reimburse the Commission for its cost in doing same. The obligation to operate, use and/or maintain the facility to the satisfaction of the Commission remains in force as long as the facility exists and is within the area under the jurisdiction of the Commission.
9. **Waiver of Rights.** Nothing in this permit shall be construed to grant any rights whatsoever to any public utilities whatsoever except as to the consent herein specifically given, nor to impair in any way existing rights granted in accordance with the Constitution or laws of the State.
10. **Drive Culvert.** If a drive culvert is needed for the installation of the driveway or if there is a need to enclose an existing driveway, the proper size, elevation, and type of material will be specified by the Road Commission. The backfill over the pipe will consist of granular material acceptable to the Road Commission or native soil from the immediate area. Broken concrete, brick, cement block or bituminous material will not be allowed for backfilled with the road-right-of way and the cost of removal of such material will be billed directly to the property owner.
11. **Other Public Agencies.** This permit does not relieve the Permit Holder from meeting other applicable laws and regulations of other public agencies. The Permit Holder is responsible for obtaining additional permits or releases which may be required in connection with this work from all other public agencies, public utilities, corporations and individuals, including property owners. Permission may be required from adjoining property owners.
12. **Assignment.** This Permit may not be assigned without the prior approval of the Saginaw County Road Commission. If approval is granted, the assignor shall remain liable and the assignee shall be bound by all terms of this permit.
13. **Modification.** The terms and conditions of this Application and Permit shall not be modified, amended or altered, and no employee of the Road Commission is authorized to do so, nor has the power to do so, absent said amendment or alteration being in writing and executed by the authorized representative of the Permit Holder and the Road Commission.

SECTION 01010

SUMMARY OF WORK

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Scope of Work.
- B. Contractor Use of Site.
- C. Future work.
- D. Work Sequence.
- E. Land Owner Occupancy.
- F. Utilities Constructed Within Public Streets.
- G. Utilities Constructed Within MDOT Right-of-Ways.

1.2 SCOPE OF WORK

- A. The Contractor shall furnish all the labor, material, and construction equipment and perform all the work for the construction of the O'Grady Drain, Beier Drain and McClellan Run Drain, including open drain excavation, installation of drain crossings, cleanout of existing crossings, leveling of spoils, seeding, fertilizing, and mulching of entire drain, site clearing, cutting and stacking of trees, chipping of brush and debris, placement of riprap, repair of field tile outlets, etc. as shown on the Drawings and described in the Specifications prepared by Spicer Group, Inc. Contractor shall be responsible for the entire work until completed and accepted by the Owner.
- B. The Owner will obtain easements and right-of-ways needed for construction.
- C. Furnish labor, tools, equipment, and materials for the construction of the Project, as shown on the drawings and described in the Specification.

1.3 CONTRACTOR USE OF SITE

- A. Limit use of site to allow:
 - 1. Work by Others.
 - 2. Use of site and premises by public.
- B. Utility Outages and Shutdown: Schedule temporary shutdowns of active utilities at times that will cause the least interference with service use and as, approved by the Owner and Engineer.
- C. Construction Operations: Limited to right-of-way limits and Owner furnished easements, as noted on Drawings.
- D. Emergency Building Exits During Construction: Maintain ingress and egress for businesses in the area.

1.4 WORK SEQUENCE

- A. Construct Work in an upstream direction during the construction period, coordinate construction schedule and operations with Engineer:

1.5 LAND OWNER OCCUPANCY

- A. Cooperate with Land Owners to minimize conflict. If disputes arise, contact the Engineer immediately.
- B. Contractor will provide Land Owners a minimum four (4) day notice to relocate obstructions within the Drain right-of-way. A seven (7) day notice is required for fence relocations.

1.6 UTILITIES CONSTRUCTED WITHIN PUBLIC STREETS

- A. Conform to the requirements of the City, County, Township, Village, MDOT, or authority having jurisdiction over the road.
- B. Obtain and pay for construction permits from the authority having jurisdiction in order to work in the public road right-of-way.
- C. Notify the authority two (2) working days in advance of the intention to cross a roadway.
- D. Install and maintain traffic control devices in accordance with Section 01570 Traffic Regulation.
- E. Contractor shall be liable for all accidents and damage occasioned in any way by his acts or neglect or by the acts or neglect of his sub-contractors, agents, employees, or workmen.

END OF SECTION

SECTION 01019

CONTRACT CONSIDERATIONS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Application for Payment.
- B. Change procedures.

1.2 RELATED SECTIONS

- A. Section 01600 – Material and Equipment: Product Substitutions and Alternates.
- B. Section 01700 – Contract Closeout.

1.3 APPLICATIONS FOR PAYMENT

- A. Payment shall be in accordance with Public Act 524 – Payment Plan No. 2.
- B. Format will follow the schedule of values bid in the proposal.
- C. Submit invoices for stored materials.
 - 1. Only on-site stored and secured materials will be paid for.
 - 2. Stored materials shall be for this project only.
- D. Submit waivers.
- E. Submit updated construction schedule with each application for payment.

1.4 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time, as authorized by General Conditions, Paragraph 9.5, by issuing supplemental instructions on a Field Order.
- B. The Engineer may issue a Notice of Change, which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications and a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within ten (10) days.
- C. The Contractor may propose a change by submitting request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600 – Material and Equipment.
- D. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's estimated price quotation or Contractor's request for a Change Order, as approved by Engineer.

- E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work, which are not pre-determined, execute Work under a Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- F. Work Directive Change: Engineer may issue a directive, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.
- G. Time and Material Force Account Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- H. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

END OF SECTION

SECTION 01027

APPLICATIONS FOR PAYMENT

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for preparation and submittal of Applications for Payment.

1.2 RELATED SECTIONS

- A. Agreement: Contract Price and amounts of Progress Payments and Retainages.
- B. General Conditions: Progress Payments and Final Payment.
- C. Section 01028 – Change Order Procedures: Procedures for changes to the Work.
- D. Section 01300 – Submittals: Submittal procedures.
- E. Section 01700 – Contract Closeout: Final Payment.

1.3 FORMAT

- A. Format shall follow that of the Bid Form. Installed quantity, description of work, unit price, installed price, retainage, payment amount, and date must be included.
- B. Payment shall be in accordance with Public Act 524 – Payment Plan No. 2.

1.4 PREPARATION OF APPLICATIONS

- A. Present required information in typewritten form or on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.
- D. Prepare Application for Final Payment as specified in Section 01700.

1.5 SUBMITTAL PROCEDURES

- A. Submit one copy of each Application for Payment.
- B. Submit an updated construction schedule with each Application for Payment.
- C. Submit under transmittal letter specified in Section 01300.

1.6 SUBSTANTIATING DATA

- A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date and line item by number and description.

END OF SECTION

SECTION 01028

CHANGE ORDER PROCEDURES

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Documentation of change in Contract Price and Contract Time.
- C. Change procedures.
- D. Construction Change Authorization or Work Directive Change.
- E. Stipulated Price change order.
- F. Unit price change order.
- G. Time and material change order.
- H. Execution of change orders.
- I. Correlation of Contractor submittals.

1.2 RELATED SECTIONS

- A. Agreement Forms: Monetary values of established Unit Prices and percentage allowances for Contractor's overhead and profit.
- B. General Conditions: Governing requirements for changes in the Work, in Contract Price, and Contract Time.
- C. Section 01027 – Application for Payment.
- D. Section 01300 – Submittals.
- E. Section 01600 – Material and Equipment: Product options and substitutions.
- F. Section 01700 – Contract Closeout: Project Record Documents.

1.3 SUBMITTALS

- A. Submit name of the individual authorized to receive change documents and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Change Order Forms: See General Conditions.

1.4 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs of changes in the Work.

- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
 - 1. Quantities of products, labor, and equipment.
 - 2. Taxes, insurance, and bonds.
 - 3. Overhead and profit.
 - 4. Justification for any change in Contract Time.
 - 5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs and for work done on a time and material basis, with additional information:
 - 1. Origin and date of claim.
 - 2. Dates and times work was performed and by whom.
 - 3. Time records and wage rates paid.
 - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.5 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time, as authorized by General Conditions Articles 10, 11 and 12, by issuing supplemental instructions on Field Order.
- B. The Engineer may issue a Proposal Request, which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required, and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within fifteen (15) days.
- C. The Contractor may propose a change by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.

1.6 CONSTRUCTION CHANGE AUTHORIZATION OR WORK DIRECTIVE CHANGE

- A. Engineer may issue a document, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work, and will designate method of determining any change in Contract Price or Contract Time.
- C. Promptly execute the change in Work.

1.7 STIPULATED PRICE CHANGE ORDER

- A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

1.8 UNIT PRICE CHANGE ORDER

- A. For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.

- B. For unit costs or quantities of units of work, which are not pre-determined, execute Work under a Construction Change Authorization or Work Directive Change.
- C. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.

1.9 TIME AND MATERIAL CHANGE ORDER

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Engineer will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.
- C. Maintain detailed records of work done on Time and Material basis.
- D. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.

1.10 EXECUTION OF CHANGE ORDERS

- A. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties, as provided in the Conditions of the Contract.

1.11 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Construction staking.
- C. Alteration project procedures.
- D. Pre-construction conference.
- E. Pre-installation conferences.

1.2 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify Engineer of changes in construction schedule forty-eight (48) hours prior to change.
- C. Submit updated construction schedule with each progress payment submittal.
- D. Owner will contract separately with utility companies for their work on this site. The Contractor is responsible for scheduling and coordinating the utility companies work into the sequence of the site construction.
- E. Coordinate completion and cleanup of Work of the various Sections of specifications in preparation for Substantial Completion.

1.3 CONSTRUCTION STAKING

- A. Construction staking will be done by Engineer and paid for by the Owner.
- B. Contractor to locate and protect survey control and reference points.
- C. Control datum for survey is that shown on Drawings.
- D. Coordinate schedule for construction staking forty-eight (48) hours before staking is required.
- E. Contractor shall pay for replacement of damaged or removed construction stakes.

1.4 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product Sections, match existing products and work for patching and extending work.

- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- C. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to specified condition.
- D. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- E. Finish surfaces as specified in individual product Sections.
- F. Where there are changes in open drain cross sections, excavate a 20-foot smooth transition between sections.
- G. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.
- H. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Engineer's review and request instructions from Engineer.
- I. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections.

1.5 PRE-CONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference after Notice of Award.
- B. Owner or Engineer will schedule a Preconstruction Conference.
- C. Attendance Required: Owner, Engineer, and Contractor, subcontractor, private utilities, and governmental agencies.
- D. Agenda:
 1. Introductions.
 2. Utility Representatives comments and requirements.
 3. Execution of Owner-Contractor Agreement.
 4. Submission of executed bonds and insurance certificates.
 5. Distribution of Contract Documents.
 6. Submission of list of Subcontractors, list of products, Schedule of Values, and progress schedule.
 7. Designation of personnel representing the parties in Contract, along with contact numbers, and the Engineer.
 8. Submission of list of supervisory personnel representing the Contractor and subcontractor along with daytime and emergency phone numbers.
 9. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 10. Scheduling.
 11. Items of special interest and attention.
 12. Utility representative comments and requirements.
 13. Questions and comments.

1.6 PRE-INSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Engineer four (4) days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes, and distribute copies within two (2) days after conference to participants, with two (2) copies to Engineer.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

END OF SECTION

SECTION 01300

SUBMITTALS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Shop Drawings.
- E. Product data.
- F. Samples.
- G. Manufacturers' instructions.
- H. Manufacturers' certificates.

1.2 RELATED SECTIONS

- A. Section 01019 – Contract Considerations.
- B. Section 01039 – Coordination and Meetings.
- C. Section 01400 – Quality Control: Manufacturers' field services and reports.
- D. Section 01700 – Contract Closeout: Contract warranty closeout submittals and manufacturer's certificates.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted transmittal form.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, are in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project and deliver to Engineer. Coordinate submission of related items.

- F. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.
- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate to the Engineer within five (5) days prior to pre-construction conference. Construction schedule shall include a detailed list of construction dates, equipment to be used for construction, number of personnel to complete construction, and location of construction.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each major section of Work or operation section of Work, identifying first workday of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages, and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.

1.5 PROPOSED PRODUCTS LIST

- A. Within fifteen (15) days after date of Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 SHOP DRAWINGS

- A. Submit the number of opaque reproductions, which Contractor requires, plus (3) three copies, which will be retained by the Engineer. The Engineer will mark up no more than eight (8) copies.
- B. After review, distribute in accordance with Article on Procedures above and for Record Documents described in Section 01700 – Contract Closeout.

1.7 PRODUCT DATA

- A. Submit the number of copies, which the Contractor requires, plus three (3) copies, which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 – Contract Closeout.

1.8 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.9 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Engineer for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications, as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

END OF SECTION

SECTION 01400
QUALITY CONTROL

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Inspection and testing laboratory services.
- E. Manufacturers' field services and reports.
- F. Benchmarks and control elevations.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of Manufacturers' Instructions and Certificates.
- B. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION

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

1.4 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification for Engineer before proceeding.

- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 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 as determined necessary by Engineer for open drain excavation.
- C. Owner will pay for services to perform construction inspection and material testing according to specifications.
- D. Inspections, tests, and other services specified in individual specification Sections will be performed by the Engineer, as required.
- E. Cooperate with Engineer; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
- F. Make arrangements with Engineer and pay for additional samples and tests required for Contractor's use.
- G. 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.
- H. Survey shots of the dredging will be conducted to determine amount excavated.
- 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, design mix, 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.

1.6 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 installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report within 30 days of observation to the Engineer for review.

1.7 BENCHMARKS AND CONTROL ELEVATIONS

- A. Elevations for proposed work shall be set from bench marks established for this project.
- B. Verify elevations of existing features against project benchmarks.
- C. Notify Engineer of conflicts in elevations, which affect the proposed work.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Controls: Barriers, protection of the Work, and water control soil erosion and sedimentation control.
- B. Progress cleaning.
- C. Removal of utilities, facilities, and control.
- D. Temporary driveways.

1.2 RELATED SECTIONS

- A. Section 01570 – Traffic Regulation.
- B. Section 01700 – Contract Closeout: Final cleaning.

1.3 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Construction Facilities and Temporary Controls:
 - 1. Basis of Measurement: Included in the unit price bid for open channel excavation or drain crossing.
 - 2. Basis of Payment: Includes all associated labor, material, and equipment required for Construction Facilities and Temporary Controls required for this project for a complete installation.

1.4 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage from construction 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 adjacent buildings for use during construction.

1.5 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.

1.6 SOIL EROSION AND SEDIMENTATION CONTROL

- A. Conform to Part 91 of Public Act 451 of 1994, relative to Soil Erosion and Sedimentation Control for the life of the project.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains to prevent sediment from entering adjacent waterways.
- D. Do not deposit trash, debris, or sediment in tile or open drains.
- E. Immediately repair trenches located within the traveled surface of roadways.
- F. Landscape construction areas as soon as practical after work is complete according to Sections 02923 – Landscape Grading, 02936 – Seeding.

1.7 PROTECTION OF INSTALLED WORK

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

1.8 PROTECTION OF EXISTING FACILITIES

- A. CALL "MISS-DIG" (1-800-482-7171) A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO CONSTRUCTION.
- B. Protect landscaped areas. Damaged areas shall be replaced in kind.
- C. Protect utilities encountered during the work. Replace or repair damaged utilities.
- D. Protect drives, roadways, and sidewalks. Repair as required in following sections.
- E. 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.
- F. Utilities must remain in service. If it becomes necessary to interrupt a utility service, the utility authority must be notified immediately and steps taken to restore temporary or permanent service as soon as possible.
- G. Maintain outlets for drains. Provide temporary pumping, if necessary.
- H. Expose utility mains and services by hand in the trench.
- I. Where utility and drainage piping crosses the trench, support the piping according to the utility authority's standards and backfill to the top with compacted sand.

1.9 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. Remove waste materials, debris, and rubbish from site daily and dispose off-site.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion 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.

END OF SECTION

SECTION 01570
TRAFFIC REGULATION

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Traffic Control.
- B. Construction Parking Control.
- C. Flagmen.
- D. Flares and Lights.
- E. Haul Routes.
- F. Traffic Signs and Signals.
- G. Removal.

1.2 RELATED SECTIONS

- A. Section 01010 – Summary of Work.
- B. Section 01039 – Coordination and Meetings.
- C. Section 01500 – Construction Facilities and Temporary Controls: Barriers and enclosures. Access roads and parking areas.

1.3 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Traffic Control:
 - 1. Basis of Measurement: Included in lump sum bid for traffic control.
 - 2. Basis of Payment: All required traffic regulations to meet the requirements of the authority having jurisdiction.

1.4 TRAFFIC CONTROL

- A. Comply with the rules and regulations of the 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 and the MDOT Standard Specifications for Highway Construction.
- D. Maintain through traffic unless written permission to do otherwise is obtained from the authority having jurisdiction over the road.
- E. Maintain traffic control devices.
- F. Provide and maintain detour signs if allowed to close road.

1.5 SIGNS, SIGNALS, AND DEVICES

- A. Traffic Control Signals: As approved by local jurisdictions.
- B. Traffic Cones and Drums, Flares, and Lights: As approved by local jurisdictions.
- C. Flagman Equipment: As approved by local jurisdictions.
- D. Post Mounted and Wall Mounted Traffic Control and Informational Signs: Specified in paragraph 1.3 Traffic Control.
- E. Automatic Traffic Control Signals: As approved by local jurisdictions.

1.6 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Land Owner's 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.

1.7 FLAGMEN

- A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

1.8 FLARES AND LIGHTS

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

1.9 HAUL ROUTES

- A. Consult with authority having jurisdiction in establishing public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

1.10 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, 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 as Work progresses, to maintain effective traffic control.

1.11 REMOVAL

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

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01400 – Quality Control: Product quality monitoring.

1.3 PRODUCTS

- A. Products: 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.
- D. All materials and products shall be new unless noted.

1.4 TRANSPORTATION AND HANDLING

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

1.5 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.

1.6 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.

1.7 SUBSTITUTIONS

- A. Engineer will consider requests for Substitutions only within fifteen (15) days after date of Owner-Contractor Agreement.
- B. Instructions to Bidders (IB) specify time for submitting requests for Substitutions after the Effective Date of the Agreement to requirements specified in this Section.
- C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- D. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- E. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work, which may be required for the Work to be complete, with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension, which may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.

- F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- G. Substitution Submittal Procedure:
1. Submit three (3) copies of request for Substitution for consideration. Limit each request to one (1) 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.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Warranties.
- G. Correction period.
- H. Punch list procedures.

1.2 RELATED SECTIONS

- A. Section 01500 – Construction Facilities and Temporary Controls: Progress Cleaning.

1.3 CLOSEOUT PROCEDURES

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

1.4 PUNCH LIST PROCEDURES

- A. Contractor shall notify Engineer when the work is substantially complete in accordance with Contract Documents.
- B. Owner and Engineer will each appoint one Punch list Representative who will conduct an inspection of the work and compile a list of items that are incomplete or do not comply with the requirements of the Contracts Documents. Contractor may accompany the inspection.
- C. Contractor shall acknowledge that subsequent to the initial issuance of the punch list, more items may be added to the list, which will be deemed amended, but only by the punch list representatives.
- D. Contractor shall proceed immediately to address the items on the list.

- E. Contractor shall notify Engineer when listed items are completed and corrected.
- F. Contractor shall make arrangements with the Owner and Punch list Representative for final inspection and acceptance. Should items still be deficient, they will remain on the list until accepted by the Owner and Engineer.
- G. Money will be retained under the Contract to cover items not accepted by the Owner and Engineer.

1.5 FINAL CLEANING

- A. Final cleaning shall be completed prior to final payment.
- B. Execute final cleaning prior to final inspection.
- C. Clean site; sweep paved areas, rake clean landscaped surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- E. Repair washouts and seed poorly vegetated areas, as directed by the engineer.
- F. Cleanout all sedimentation basins.
- G. Cleanout excess sediment islands deposited (more than 0.3ft.) in drain during construction, as required by Engineer.
- H. Clean site to a sanitary and non-hazardous condition.
- I. Restore roads, driveways, parking areas, lawns, drainage, and other items disturbed during construction to original condition or as required by the documents.
- J. Bury all debris according to section 02110 – Site Clearing.
- K. Remove excess sediment from catch basin sumps.
- L. Landscape areas as required in documents.
- M. Clean site; sweep paved areas, rake clean landscape surfaces.

1.6 ADJUSTING

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

1.7 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.

- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Field changes of dimension and detail.
 - 2. Details not on original Contract Drawings.
- F. Submit documents to Engineer with claim for final Application for Payment.
- G. Final Payment will not be paid until uniform grass growth is along the entire project.

1.8 WARRANTIES

- A. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- B. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- C. Submit prior to final Application for Payment.
- D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

1.9 CORRECTION PERIOD

- A. For a period of one (1) year from the date of substantial completion, promptly correct work or replace materials that are found to be defective.
- B. Seed, as needed to establish uniform growth of grass. Final payment will not be issued until uniform growth of grass is established.
- C. Repair erosion areas as directed by Engineer within one year of substantial completion.

END OF SECTION

SECTION 02110
SITE CLEARING

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Remove surface debris.
- B. Remove paving.
- C. Clear site of plant life and grass.
- D. Remove trees and shrubs.
- E. Remove root system of trees and shrubs.
- F. Remove existing storm sewer, drive culverts, and catch basins.
- G. Topsoil excavation.
- H. Protection.
- I. Site clearing and grubbing.
- J. Debris management.
- K. Herbicide application.

1.2 RELATED SECTIONS

- A. Section 02211 – Rough Grading.
- B. Section 02274 – Soil Erosion Prevention and Sedimentation Control.
- C. Section 02222 – Excavation.
- D. Section 02923 – Landscape Grading.

1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable code for disposal of debris, burning debris on site, and use of herbicides.
- B. Coordinate clearing Work with utility companies.

1.4 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Site Clearing:
 - 1. Basis of Measurement: At the lump sum price bid for site clearing, as stated in the Proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment for clearing of site, debris management, disposing, loading and removing waste material, and as indicated in specifications and/or drawings, loading and removing of salvageable and unsalvageable structures, excavation, removing stumps and root balls, hauling non-burnable debris, cutting and stacking or chipping or burning of trees, root raking of spoils in agricultural area.

2. PART 2 PRODUCTS

2.1 MATERIALS

- A. Herbicide:
 - 1. Garlon 4+ Axit shall be used on all cut stumps per manufacturer's specifications.
 - 2. Garlon 3a or 4 shall be used for foliar application per manufacturer's specifications.
 - 3. Applicator shall be certified.
 - 4. Use only when approved by Engineer.

3. PART 3 EXECUTION

3.1 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.

3.2 PROTECTION

- A. Locate, identify, and protect utilities from damage.
- B. Protect survey stakes.
- 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. Burnable debris not to be covered with earth or spoils.

3.3 CLEARING, GRUBBING AND HERBICIDE APPLICATION

- A. Notify Engineer forty-eight (48) hours prior to clearing, grubbing, or applying herbicide.
- B. Clear all trees, shrubs, and brush located between top of drain banks in accordance with the following:
 - 1. In reaches proposed for clear and spray, the Contractor shall not excavate.
 - 2. In reaches proposed for clearing and grubbing, the Contractor shall remove and/or excavate all stumps, trees, and brush.
 - 3. In reaches proposed for sloping two banks, clear and grub.

- C. Stumps located in drain bottom toe of slope, or in proposed excavation areas shall be grubbed or ground up completely. **No burying of stumps or debris will be allowed.**
- D. Stumps not indicated for grubbing or grinding shall be trimmed within six (6) inches of proposed grade and sprayed with herbicide to inhibit future growth.
- E. Apply herbicide to all trees, shrubs, brush and stumps located between tops of drain banks.
- F. Clear areas required for access to site and execution of work or as indicated on plans.
- G. Channel clearing and grubbing to be done according to the plans.

3.4 DEBRIS MANAGEMENT

- A. Coordinate debris management with Engineer, prior to construction.
- B. Burnable debris will be burned or hauled away in agricultural areas.
- C. The proper authority must obtain burning permits.
- D. Burnable Debris.
 1. Agricultural areas – The debris is to be piled and burned at intervals of not less than 100' on the right-of-way. Debris piles shall not be higher than 35' in any direction. All debris shall be removed.
 2. Residential areas – As indicated on drawings. All debris shall be disposed of. All stumps shall be removed from the site and disposed of.
- E. In agricultural areas, root rake and hand pick sticks and rocks so that foreign debris 1' in length or 6" in diameter is disposed of.
- F. Non-Burnable Debris.
 1. Agricultural areas – Debris to be disposed of.
 2. Residential areas – Debris to be removed and disposed of.
 3. Existing spoils do not require leveling unless the proposed construction activity requires it.

3.5 MARKETABLE TIMBER

- A. Contractor may remove timber from site provided landowner is not opposed to timber removal.
- B. Cut trees in 8' lengths and stack within drain right-of-way in wooded area. Treetops and small trees shall be chipped. Wood chips shall be spread along backside of spoil banks. In lawn and landscaped areas, all debris must be removed unless requested by landowner.

3.6 FENCES AND/OR OTHER PRIVATE PROPERTY

- A. Fences and other private property located within drain right-of-way are the responsibility of the landowner.
- B. Contractor shall notify landowners and engineer of conflicts and provide reasonable cooperation and assistance.

- C. Any structures outside of drain right-of-way shall not be disturbed. Contractor shall correct all damage outside of right-of-way at his expense.
- D. Contractor shall disassemble fence, etc. and stockpile off right-of-way, and landowner is responsible for reassembly. No extra payment will be made for fences, etc.

END OF SECTION

SECTION 02211
ROUGH GRADING

1. PART 1 GENERAL

1.1 WORK INCLUDES

- A. Topsoil excavation.
- B. Subsoil excavation.
- C. Filling.
- D. Spoil leveling.

1.2 RELATED SECTIONS

- A. Information Available to Bidders: Soil investigation report; bore hole locations and findings of subsurface.
- B. Section 01400 – Quality Control: Testing fill compaction.
- C. Section 02110 – Site Clearing.
- D. Section 02222 – Excavation.
- E. Section 02223 – Backfilling.
- F. Section 02225- Trenching.
- G. Section 02923 – Landscape Grading.

1.3 REFERENCES

- A. ANSI/ASTM D1556 – Test Method for Density of Soil in Place by the Sand-Cone
1. Method.
- B. MDOT Density Control Handbook, 2003.
- C. MDOT 2003 Standard Specifications for Construction.
- D. ANSI/ASTM D1156 – Test Method for Density of Soil in Place by the Sand-Cone
1. Method.
2. Test Method for Density of Soil in Place with loss by wash less than 15% - One Point Michigan Cone Test.
- E. Test Methods for Density of Soil with loss by wash greater than 15% - One Point T-99 Test.
- F. ASTM D2922 – Test Methods of Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

- 1.4 SUBMITTALS
 - A. Submit under provisions of Section 01300.
- 1.5 UNIT PRICE – MEASUREMENT AND PAYMENT
 - A. Rough Grading:
 - 1. Basis of Measurement: Included in unit bid price for open drain excavation, drain crossings, spoil leveling, and site restoration.
 - 2. Basis of Payment: Includes material, labor, and equipment for excavation, filling, and grading to provide required contours and grades.
- 1.6 PROJECT RECORD DOCUMENTS
 - A. Accurately record actual locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slope gradients and submit in accordance with Section 01700 – Submittals.
- 2. PART 2 PRODUCTS
 - 2.1 MATERIALS
 - A. Topsoil: Excavated material, graded, free of roots, rocks, subsoil, debris, and large weeds.
 - B. Subsoil: Excavated material, graded, free of lumps larger than 6 inches, rocks larger than 3 inches and debris.
 - C. Granular Fill: Type B: MDOT Class IIA for dry excavation. Substitute with Type A MDOT 6A coarse stone for wet excavation.
- 3. PART 3 EXECUTION
 - 3.1 EXAMINATION
 - A. Verify site conditions under provisions of Section 01039.
 - B. Verify that survey benchmark and intended elevations for the Work are as indicated.
 - C. Verify that fill materials to be used are acceptable.
 - 3.2 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.

3.3 TOPSOIL EXCAVATION

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

3.4 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 wet subsoil.
- D. Stockpile subsoil to depth not exceeding eight (8) feet. Cover to protect from erosion.
- E. When excavation through roots is necessary, perform work by hand and cut roots with sharp axe.

3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials allowing for placement of topsoil.
- B. Granular Fill: Place and compact materials in continuous layers not exceeding 6 inches compacted depth, compacted to 95 percent.
- C. Subsoil and Topsoil Fill: Place and compact material in continuous layers not exceeding 12 inches compacted depth, compacted to 95 percent.
- 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.
- H. Remove surplus and unsuitable fill materials from site.

3.6 SPOIL LEVELING

- A. In accordance with Section 02222 – Excavation.

3.7 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/10 foot.

3.8 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400.
- 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 work does not meet specified requirements, remove work, replace and retest at no cost to Owner.
- E. Frequency of Tests: At the discretion of the Engineer.

END OF SECTION

SECTION 02222

EXCAVATION

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Open drain excavation.
- B. Channel cleanout.
- C. Drain restoration.
- D. Spoil removal and hauling.
- E. Spoil leveling.
- F. Manholes.
- G. Roadways.
- H. Other Structures.
- I. Road shoulder construction.

1.2 RELATED SECTIONS

- A. Section 01019 – Contract Considerations.
- B. Section 01400 – Quality Control.
- C. Section 01500 – Construction Facilities and Temporary Controls: Dewatering excavations and water control
- D. Section 02110 – Site Clearing.
- E. Section 02211 – Rough Grading.
- F. Section 02223 – Backfilling.
- G. Section 02226 – Storm Sewer Trenching and Backfilling.
- H. Section 02751 – Drain Crossings.

1.3 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Open Channel Excavation (All Locations - Slope Banks as Indicated):
 - 1. Basis of Measurement: At the unit bid price per lineal foot as stated in the proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment to excavate the drain to required bottom widths, slope banks as indicated to the required slope, as shown on the plans.

- B. Channel Cleanout:
 - 1. Basis of Measurement: At the unit bid price per lineal foot as stated in the proposal.
 - 2. Basis of Payment: Includes all labor, equipment, and material to cleanout existing drain bottom and provide positive drainage to the existing ditch. Also includes cleanout of existing crossings as shown on plans.
- C. Spoil Hauling:
 - 1. Basis of Measurement: Included in unit price per lineal foot, as stated in the proposal.
 - 2. Basis of Payment: Includes labor and equipment to dewater spoils, load and remove spoils from the project site as indicated on the plans and as stated in the proposal.
- D. Spoil Leveling:
 - 1. Basis of Measurement: At the unit price bid per lineal foot as stated in the proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment to level spoils as indicated on drawings and specifications, removal of debris from leveled spoils and root raking of spoils. Spoils not suitable for leveling in the designated spoil leveling area are to be removed from the site.

2. PART 2 PRODUCTS

2.1 PREPARATION

- A. Notify Engineer in accordance with Section 01039 – Coordination and 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, which are to remain.
- 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.

2.2 OPEN CHANNEL EXCAVATION AND CHANNEL CLEANOUT

- A. Clear site in accordance with Section 02110 – Site Clearing.
- B. Excavate drain to the dimensions and cross sections specified on drawings.
- C. Contractor shall check flow line elevations every 100 ft. (Grade stakes will be provided by Engineer). Over excavation of 0.3 ft. or greater will be filled with Type F-7A stone to the proposed flow line as incidental cost to the Contractor.
- D. Contractor shall remove all sediment from existing culverts to remain.

- E. When drain parallels a road, all excavation will be on field side slope, unless stated on drawing or required by Engineer.
- F. Underpin adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- G. Machine slope banks to required slopes.
- H. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- I. Correct unauthorized excavation at no extra cost to Owner.
- J. Seed excavated areas daily in accordance with Section 02936 – Seeding.
- K. Repair and replace field tile outlets, as directed by Engineer and in accordance with Section 2715.
- L. Match existing side slopes in reaches identified channel cleanout.
- M. Spoils on roadsides and lawn areas are to be hauled away.
- N. When excavating one side slope of drain, the opposite ditch bank shall be cleared in accordance with Section 02110 – Site Clearing. Grass vegetation should not be removed on opposite side slopes.
- O. In muck areas, construct pilot channels to dewater spoils based on field conditions. Cost included in open channel excavation.

2.3 SPOIL LEVELING

- A. Seed spoils in accordance with Section 02936 – Seeding.
- B. Spoils are to be leveled in drain right-of-way, as shown on plans, unless Contractor receives written permission from landowner to stockpile.
- C. Spoils placed on tillable land shall be spread evenly as shown on plans.
- D. Spoils in wooded areas shall be stockpiled as shown on plans.
- E. Spoils are to be kept a minimum three (3) feet from excavation area.
- F. No excavated materials shall be placed on roads without written permission of the authorities having jurisdiction of said road.
- 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 or drain.
- I. Side grade outs for watercourse and ditches shall be done at the time of open drain excavation or channel cleanout.
- J. Non-combustible items (i.e. roots and stumps), brush, or debris shall not be mixed with leveled spoil material.

- K. Shape leveled spoils to prevent the ponding of water behind spoil pile. 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.
- L. In agricultural areas, root rake and hand pick sticks and rocks so that foreign debris 1' in length and/or 6" in diameter is disposed of.
- M. Prior to completion, spoil piles, especially in agricultural and residential areas, must be raked to remove wood and rocks.
- N. Topsoil must be placed on spoil piles in which the native excavated material is not suitable for establishing vegetation.

2.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01400.
- B. Provide for visual inspection of bearing surfaces.
- C. Periodic field inspection will be performed.

2.5 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect landscape areas, mailboxes, trees, lawns, etc. Any damage to these areas becomes the responsibility of the Contractor.

2.6 DUST CONTROL

- A. The Contractor shall implement measures to minimize dust, especially near residents, upon the engineer's request. Cost included with open channel excavation.
- B. The plan shall include but not be limited to the implementation of a combination of any or all of the following techniques as determined to be applicable to this project.
 1. Wet Suppression – How will water be applied? How often?
 2. Vehicle Speed Reduction – What will be the posted speed limit?
 3. Surface Cleaning – How will this be done?
 4. Traffic Control – Identify the main travel and haul roads.
 5. Windbreaks – What types if any will be used?
 6. Good Operating Practices – Name some good operating practices.
- C. The Contractor shall submit the plan to the Engineer at least thirty (30) days prior to start of construction for review and approval by the MDEQ District Office.

2.7 EXCAVATION

- A. Underpin adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- B. Excavate subsoil required to shape detention basin to size and to 6 inches below finish grade elevations, as shown on the plans.

- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Provide, operate, and maintain pumping equipment to keep excavation free of water.
- E. Remove lumped subsoil, boulders, and rock.
- F. Notify Owner's representative of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- G. In areas that are suspect and may require sub-grade undercutting, notify Owner's representative immediately. Do not proceed until it is agreed sub-grade undercutting is required and quantities can be documented.
- H. Machine slope banks according to OSHA guidelines.
- I. Correct unauthorized excavation at no extra cost to Owner.
- J. Correct areas over-excavated by error in accordance with Section 02223 – Backfilling.
- K. Excess excavation material is understood to mean the excess excavated and remaining after the required backfilling hereinbefore specified is completed. Such excess excavated material shall be loaded by the Contractor and trucked to disposal sites designated by the Owner. Excess excavated material not used by the Owner shall become the property of the Contractor and shall be removed from the project. The unexcavated portions of the roadway surface shall be left in their original condition, graded free of any clay deposits. No surplus excavated material will be left in the road ditches.

END OF SECTION

SECTION 02223

BACKFILLING

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Structure backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Consolidation and compaction.
- D. Fill under roadways, driveways, sidewalks, parking lots, and other traveled surfaces.
- E. Fill for over-excavation.
- F. Utility trench backfilling.
- G. Backfill for drain crossing and traveled surfaces.
- H. Fill materials.
- I. Building pads filling to subgrade elevations.
- J. Fill under slabs-on-grade pads.
- K. Fill sub-grade undercutting.

1.2 RELATED SECTIONS

- A. Section 01400 – Quality Control.
- B. Section 02222 – Excavation.
- C. Section 02225 – Trenching: Backfilling of utility trenches.
- D. Section 02751 – Drain Crossings.
- E. Section 03001 – Concrete.

1.3 REFERENCES

- A. ANSI/ASTM C136 or MTM 108 & 109 – Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM C117 or MTM 108 – Test method for materials finer than 15mm (No. 200 Sieve) in mineral aggregates by washing.
- C. ASTM D2992 – Test methods of Density of Soil and Soil Aggregate in place by the Nuclear Methods (Shallow Depth).
- D. MDOT "2003 Standard Specifications for Construction."

- E. MDOT Density Control Handbook, 2003.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Samples: Submit 10 lbs. sample of each type of fill to Engineer in airtight containers.
- C. Samples: Submit 25 lbs. sample of each type of fill to Engineer in airtight containers.

1.5 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Backfill Materials:
 - 1. Basis of Measurement: Included in unit price for piping, structure, or drain crossing, as stated in the proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment necessary to backfill for this project. All culverts must be backfilled to provide 18" to 24" of minimum cover.

2. PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Type A – Coarse Stone Fill: MDOT 6A – for wet excavation, excavation within open drain, refill for poor soil or over excavation in pipe trench, compacted to 95 percent of maximum density. A ballast type crushed limestone free of shale, clay, friable material, sand debris graded in accordance with ANSI/ASTM C136.
- B. Type B – Granular Fill: MDOT Class II – for dry excavation, pipe bedding to spring line of pipe. Compacted to 95 percent of maximum density.
- C. Type C – Structural Fill: MDOT Class I – for lower area of excess excavation over 24", compacted to 97 percent of maximum density.
- D. Type D – Native Subsoil: Reused, free of gravel larger than 3 inch size, and debris, backfill above bedding of pipe to subgrade in greenbelt area. Compacted to 95 percent of maximum density. As approved by the Engineer.
- E. Type E – Dense Aggregate: MDOT 22A crushed limestone for driveway and temporary patches on traveled surfaces compacted to 95/98 percent of maximum density.
- F. Type F – Coarse Stone Fill: MDOT 7A – for filling open drain over excavation. A ballast type crushed limestone compacted to 95 percent of maximum density.
- G. Type G – Flowable Fill (Fill Class C concrete) – for headwall, sheet piling repair, and culvert storm sewer back filling.

2.2 ACCESSORIES

- A. Filter Fabric: See Section 02279 – Filter Fabric.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that fill materials to be used are acceptable.
- B. Verify foundation and/or perimeter drainage installation has been inspected.

3.2 PREPARATION

- A. Generally, compact sub-grade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with Type A fill (wet excavation) or Type B fill (dry excavation), and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of aggregate base course material at gravel paved areas, compact subsoil to 95 percent of its maximum dry density in accordance with MDOT Standard Requirements.
- D. Thoroughly proof-roll all areas of building pads, slabs-on-grade, bituminous pavement, concrete curb and gutter and sidewalks with a fully loaded tandem-axle truck, or its equivalent.
- E. Loose or soft areas revealed during the proof-rolling operations are to be compacted or removed and replace with compacted Type B or C fill.
- F. Install geotextile fabric between subgrade and aggregate in parking and drive areas as specified by the Soils Engineer.

3.3 BACKFILL – BITUMINOUS DRIVES AND GRAVEL RESIDENTIAL DRIVES

- A. Complete Type B Backfill compacted to 95 percent of its maximum density.

3.4 BACKFILL – FARM AND NATIVE

- A. Type B Backfill to spring line of pipe compacted to 95 percent of its maximum density.
- B. Type D Backfill above spring line of pipe compacted to 95 percent of its maximum density.

3.5 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. Granular Fill: Place and machine compact materials with plate compactor in continuous layers not exceeding 6 inches compacted depth.
- D. Native Fill: Place and machine compact material with plate compactor in continuous layers not exceeding 12 inches compacted depth.

- E. Machine compact under springline of pipe with plate compactor or equivalent.
- F. Employ a placement method that does not disturb or damage foundation perimeter drainage conduit in trenches.
- G. Maintain optimum moisture content of backfill materials to attain required compaction density.
- H. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- I. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- J. Type G – Flowable Fill: Place in locations indicated on drawing. Protect from freezing temperatures for twenty-four (24) hours after placement.
- K. Make grade changes gradual. Blend slope into level areas.
- L. Remove surplus backfill materials from site.
- M. Leave fill material stockpile areas completely free of excess fill materials.
- N. Backfill wet excavation areas and over excavated areas with Engineer approved like material or Type A fill.
- O. Backfill over excavation in open drain with Type F fill.
- P. Backfill clay core with material excavated from clay core area or other clay material acceptable to Engineer.
- Q. Engineer Type B Fill: Place and compact materials in continuous layers not exceeding 9 inches compacted depth.

3.6 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.7 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400.
- B. Tests and analysis of fill material will be preferred in accordance with One Point Michigan Cone Test.
- C. Compaction testing will be performed in accordance with MDOT Standard Requirements.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.
- E. Frequency of Tests: At the discretion of Engineer.
- F. Proof roll compacted fill surfaces under slabs-on-grade.

3.8 PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01560.
- B. Recompact fills subjected to vehicular traffic.

END OF SECTION

SECTION 02225

TRENCHING

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. Excavate trenches for water main, sanitary sewer, force main, and their services to the line and grade shown on the drawings.
- B. Trench backfilling and compaction.

1.2. RELATED SECTIONS

- A. Section 01400 – Quality Control: Testing fill compaction.
- B. Section 01500 – Construction Facilities and Temporary Controls: Water control in excavations.
- C. Section 02160 – Excavation Support Systems: Temporary Sheet piling.
- D. Section 02211 – Rough Grading: Topsoil and subsoil removal from site surface.
- E. Section 02223 – Backfilling: General backfilling.

1.3. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Trenching:
 - 1. Basis of Measurement: Included in the unit price bid for drain crossing installation.
 - 2. Basis of Payment: Includes all trenching, fill, labor, material, and equipment required for trenching on this project.

1.4. REFERENCES

- A. ANSI/ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D2992 – Test Methods of Density of Soil and Soil-Aggregate in Place by the Nuclear Methods (Shallow Depth).
- C. ASTM C12 – Standard Practice for Installing Vitrified Clay Pipe Lines.
- D. ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Gravity – Flow Applications.

1.5. FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as shown on Drawings.

2. PART 2 PRODUCTS

2.1. BED MATERIALS

A. See individual utility specification section for bedding material and placement.

2.2. FILL MATERIALS

- A. Type A – Coarse Stone Fill: MDOT 6A compacted crushed limestone – for wet excavation, pipe bedding, and refill for poor soil or over excavation in pipe trench, compacted to 95 percent of maximum density. A ballast type crushed limestone free of shale, clay, friable material, and sand debris graded in accordance with ANSI/ASTM C136.
- B. Type D – Acceptable Native Subsoil: Reused, free of gravel larger than 3 inch size, and debris, compacted to 95 percent of maximum density.
- C. Type E – Dense Aggregate: MDOT 22A compacted crushed limestone – for access roads temporary patches on traveled surfaces and aggregate base course of asphalt pavement compacted to 95 percent of maximum density.

3. PART 3 EXECUTION

3.1. PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining, which pass through work area.
- C. Protect benchmarks, grade and slope stakes.

3.2. EXCAVATION

- A. Excavate subsoil required for utility piping and accessories as indicated on the drawings.
- B. Excavate on the required line to the depth required below the pipe grade for bedding thickness required.
- C. Trenches for pipe shall be excavated to the following minimum of and maximum widths measured at the top of the pipe:

<u>Pipe Size</u>	<u>Trench Width</u>	
	<u>Minimum</u>	<u>Maximum</u>
6" and smaller	18"	24"
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
Larger than 36"	I.D. + 20"	I.D. + 24"

- D. Where 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.
- E. Minimum trench width is 18 inches.
- F. Excavation shall not interfere with normal 45 degree bearing splay of foundations.
- G. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- H. Remove lumped subsoil, boulders, and rock 6 inches below bottom of pipe.
- I. Where soil in the bottom of the trench is unstable, excavate below the trench bottom and place Type A fill.
- J. Correct unauthorized excavation at no cost to Owner.
- K. Correct areas over-excavated by error with Type A fill, in accordance with Section 02223.
- L. Stockpile excavated material in area designated on site and remove excess material not being reused from site.
- M. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- N. Notify Owner's representative of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- O. Protect excavation by methods required to prevent cave-in or loose soil from falling into excavation.
- P. Provide, operate, and maintain pumping equipment to keep trench free of water.
- Q. Use trench boxes or other form of temporary protection when required by OSHA Standards or when protection of existing utilities is necessary.

3.3. BEDDING

- A. Support pipe and conduit during placement and compaction of bedding fill.
- B. See individual utility specification sections for bedding material and placement.

3.4. BACKFILLING

- A. Backfill utility trenches under paved areas with Type B fill.
- B. Backfill utility trenches under grass areas with Type D fill.
- 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 Type A fill bedding prior to placing last lift of bedding.

- E. Type B Fill: Place and compact materials in continuous layers not exceeding 9 inches to 95 percent of maximum dry density as determined by MDOT Standard Requirements. Fill to finish subgrade elevation.
- F. Employ a placement method that does not disturb or damage installed utility and existing utilities in trench.
- G. 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 C12 and D2321, as approved by the Engineer.
- H. Maintain optimum moisture content of backfill materials to attain required compaction density.
- I. Leave fill material stockpile areas completely free of excess fill materials.
- J. Backfill simultaneously around all sides of structures, manholes and catch basins.

3.5. TOLERANCES

- A. Top Surface of Backfilling: Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.6. 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 – Quality Control.
- C. Compaction testing will be performed in accordance with MDOT Standard Requirements and with Section 01400 – Quality Control.
- D. If tests indicate 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.
- F. Proof roll compacted fill surfaces under paving.

3.7. PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500 – Temporary Controls.
- B. Recompact fills subjected to vehicular traffic prior to placing wearing surface.

END OF SECTION

SECTION 02271

SLOPE PROTECTION AND EROSION CONTROL

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. Check dams.
- B. Cobblestone splash pads for field tile outlets.
- C. Grass spillways.
- D. Spillway Grade Outs.
- E. Plain riprap spillways.
- F. Erosion control fabric.
- G. Riprap and riprap grade and bank protection.
- H. Sediment Basin.

1.2. RELATED SECTIONS

- A. Section 01560 – Temporary Controls.
- B. Section 02211 – Rough Grading.
- C. Section 02222 – Excavation.
- D. Section 02223 – Backfilling.
- E. Section 02279 – Filter Fabric.
- F. Section 02715 – Lateral Tile Drains, Surface Outlet Tubes.
- G. Section 02751 – Drain Crossings.
- H. Section 02923 – Landscape Grading.

1.3. REFERENCES

- A. Act No. 451, Soil Erosion and Sedimentation Control Act.
- B. Natural Crushed Stone Association (N.C.S.A.).
- C. MDOT "2003 Standard Specifications for Construction."
- D. ASTM D-4595 – Test method for geo-grid tensile strength.
- E. Part 91 of Act 451 of 1994, (as amended), Soil Erosion and Sedimentation Control Act.

1.4. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Plain Riprap Splash Pad:
1. Basis of Measurement: Included in unit price bid of each, as stated in the proposal.
 2. Basis of Payment: Includes material, labor, and equipment for installation of filter fabric, placement of riprap, excavation, and grading to provide required splash pad.
- B. Miscellaneous Plain Riprap Protection:
1. Basis of Measurement: At the unit price per square yard, as stated in the proposal.
 2. Basis of Payment: Includes material, labor, and equipment for installation of filter fabric, placement of riprap, excavation, and grading to provide required contours.
- C. Plain Riprap Spillways:
1. Basis of Measurement: At the unit price bid per lineal foot, as stated in the proposal.
 2. Basis of Payment: Includes materials, labor, and equipment for installation of filter fabric, placement of riprap, excavation, and grading to required contours. Riprap shall be a minimum width of 8 ft. and bowl shaped.
- D. Plain Riprap Toe of Slope Protection:
1. Basis of Measurement: At the unit price bid per linear foot, as stated in the proposal.
 2. Basis of Payment: Includes material, labor, and equipment for installation of filter fabric, placement of riprap, excavation, and grading to provide required contours. Toe of slope riprap is paid based on five (5) linear feet of placement on bank.
- E. Grass Spillways:
1. Basis of Measurement: At the unit bid price per linear foot, as stated in the proposal.
 2. Basis of Payment: Includes all labor, materials, and equipment necessary to install grass spillways for this project, as specified and/or shown on drawings.
- F. North American Green C-350:
1. Basis of Measurement: At the unit price bid per square yard, as stated on the proposal.
 2. Basis of Payment: Includes all labor, excavation, materials, equipment, and staples/stakes necessary to install erosion control blanket for bank stabilization using the manufacturer's suggested "D" staple pattern, per manufacturer's specifications.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. Cobblestone – Sound, tough, angular crushed limestone free from structural defects. Sound pieces of concrete may be used in place of cobblestone, when approved by the Engineer. Stone shall be graded uniformly and range in dimensions from 3" x 8".
- B. Plain Riprap – Sound, tough, angular or crushed limestone free from structural defects. Sound pieces of concrete may be used in place of plain riprap, when approved by the Engineer. Stone shall be graded uniformly and range in dimensions from 4" x 12".

- C. Heavy Riprap – Sound, tough, durable rock or crushed limestone free from structural defects. Material to be uniform in size and not less than 16 inches in the least dimension. MDOT 8.19.03.
- D. Broken Concrete – With no exposed rebar and above specified dimensions maybe used **when approved by the Engineer.**
- E. All materials must be approved by Engineer before it is used on project.
- F. Filter Fabric – As specified in Section 02279 – Filter Fabric.
- G. For reinforced grass spillways erosion control fabric shall be North American Green C350 or equal.
- H. For erosion control fabric along roads. Use North American Green C350 or S-75 as shown on the plans.

3. PART 3 EXECUTION

3.1. PREPARATION

- A. Location of riprap bank and grade protection, spillways, check dams, and toe of slope protection to be determined by engineer during construction.
- B. Implement temporary controls under provisions of Section 01560 – Temporary Controls.
- C. Engineer shall determine location of erosion control materials, spillways, and splash pads during construction.

3.2. RIPRAP BANK, GRADE, AND TOE OF SLOPE PROTECTION

- A. Clear topsoil and rough grade to required contours. Over excavate protection area equal to the thickness of the protection.
- B. Place filter fabric with all edges "toed in" a minimum of 12 inches. Riprap will not pass inspection if filter fabric is not "toed in".
- C. Place protection on filter fabric; tamp protection until individual pieces are firmly bedded.
- D. Hand place stone, if necessary, to assure that there are no void spaces in protection. Upon completion, the filter fabric should not be visible.
- E. Toe of slope protection shall be installed to a length of 5 linear feet along the bank of the drain.
- F. Bank and grade protection shall be installed, as needed per location, as direct by the Engineer.
- G. Toe of slope protection shall be installed to a height of 3 vertical above the flow line of the drain.

3.3. RIPRAP SPILLWAYS

- 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. Spillway shall be constructed with a 4 ft. bottom and 2 horizontal to 1 vertical side slope. Riprap should be placed to a width of 8 ft. across the spillway.
- C. Filter fabric shall be placed under riprap and toed-in, as shown on construction drawings. Spillway will not pass inspection if filter fabric is not "toed in."
- D. Riprap should be placed starting at the toe of slope to 3 ft. beyond same side top of bank.
- 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.

3.4. REINFORCED GRASS SPILLWAY

- A. Repair washouts in spillway area.
- B. Prepare side slopes as shown on plans in undisturbed area.
- C. Over excavate area equal to the thickness of required topsoil and protection.
- D. Place topsoil as shown on plans.
- E. Rake in fertilizer; apply at the rate of 15 lbs. per 1000 sq. ft.
- F. Seed topsoil with ditch bank seeding mix at a rate of 6 pounds per 1,000 sq. ft.
- G. Place straw mulch over seeded areas.
- H. Place erosion control fabric with all edges extending completely under entire header and toe protection.
- I. Place header and toe protection. Tamp until individual pieces are firmly bedded.
- J. Place metal pins over entire spillway to anchor fabric at 2.0 feet on centers.

3.5. RIPRAP

- A. Filter fabric shall be placed under riprap and toed-in as shown on construction drawings.
- B. Tamp riprap until individual pieces are firmly bedded.
- C. Hand place stone, if necessary, to assure that there are no void spaces in protection. Upon completion the filter fabric should not be visible.

3.6. RIPRAP SPLASH PADS

- A. A splash pad shall be placed at the outlet of each surface outlet tube.

- B. Splash pads must be a minimum of 2 ft. wide and must be at minimum 1.5 ft. wider than the diameter of the tile outlet.
- C. Splash pads range from 1 to 5 sq. yds. of riprap depending on field conditions. Contractor is responsible for estimating size of splash pads.

3.7. GRASS DRAIN BANKS

- A. Repair any disturbed areas.
- B. Place topsoil where needed as shown on plans.
- C. Rake in fertilizer; apply at the rate of 15 lbs. Per 1,000 sq. ft.
- D. Seed topsoil with ditch bank seeding mix at a rate of 6 pounds per 1,000 sq. ft. Place filter fabric with all edges extending completely under entire header and toe protection.
- E. Place Erosion Control Blanket over seeded areas.

END OF SECTION

SECTION 02274

SOIL EROSION PREVENTION AND SEDIMENTATION CONTROL

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. System Description.
- B. Quality Assurance.
- C. Regulatory Requirements.
- D. Method of Payment.

1.2. SYSTEM DESCRIPTION

- A. Methods of control are identified on Drawings by numbers corresponding to the Michigan Department of Transportation keying system for soil erosion and sedimentation control.
- B. The notation "T" or "P" following the number (as shown on the Drawings) indicates whether the control measure is temporary or permanent.
- C. Additional control measures shall be employed as required by site conditions and applicable enforcing agency having project jurisdiction.

1.3. UNIT PRICE – BASIS OF MEASUREMENT

- A. Soil Erosion Prevention and Sedimentation Control:
 - 1. Basis of Measurement: Included in the unit bid price for miscellaneous plain riprap, plain riprap spillway, plain riprap toe of slope protection, grass spillway, North American Green C-350, seeding, cleanup and restoration.
 - 2. Basis of Payment: Includes all material, equipment, labor, setup, relocation, and all other aspects to accomplish this work.

1.4. QUALITY ASSURANCE

- A. Perform and maintain work in accordance with the Soil Erosion and Sedimentation Control, Part 91 of Act 451 of 1994, and corresponding rules of the Michigan Water Resources Commission.
- B. Contractor shall obtain Act 451 Permit.
- C. Contractor shall obtain soil erosion permit.

1.5. REGULATORY REQUIREMENTS

- A. Contractor shall obtain all permits and pay all fees for plan review and inspection, as required by applicable enforcing agency having jurisdiction.

- B. Submit installation time schedule for temporary and permanent soil erosion and sedimentation control measures to applicable enforcing agency having jurisdiction, as well as to Engineer. Make submittals prior to start of construction.
- C. Owner will prepare application and obtain permit.

1.6. METHOD OF PAYMENT

- A. All fees required by applicable enforcing agency shall be paid as stated in Proposal.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. Permanent Measures: In accordance with applicable Section for specified materials.
- B. Temporary Measures: In accordance with standards and specifications for soil erosion and sediment control with approved plans and requirements of applicable enforcing agency.

3. PART 3 EXECUTION

3.1. EXAMINATION AND PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Field locates known utility locations. Notify Engineer of conflicts and attain removal or relocation instructions prior to continuing installation activities.
- C. Maintain and protect existing utilities to remain.

3.2. PROTECTION OF ADJACENT WORK

- A. Protect adjacent structures, and property, which may be damaged by execution of work.
- B. Protect existing trees, shrubs, landscaping, and lawn areas designated to remain.

3.3. INSTALLATION AND MAINTENANCE

- A. Construct soil erosion and sedimentation control measures in accordance with approved plans and requirements of applicable enforcing agency.
- B. Schedule planned control measures with construction operations to limit the area of any disturbed land to the shortest possible period of exposure.
- C. Conduct all earth changes so as to effectively reduce accelerated soil erosion and resulting sedimentation.
- D. Remove all sediment from runoff water before it leaves the site.
- E. Inspect, maintain, and repair temporary control measures until permanent control measures are implemented.

- F. Maintain permanent control measures until final acceptance by Owner.
- G. Install silt fences around all catchbasin inlets, to be removed after final inspection of the project.

3.4. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

- A. Permanent and minimum temporary control measures as scheduled on Drawings.
- B. Additional temporary measures (over and above those scheduled on Drawings) due to site grading/construction activities that any way differs from that shown on drawings.

3.5. EROSION CONTROL BLANKET

- A. Repair washouts in area to be seeded.
- B. Prepare side slopes as shown on plans.
- C. Over excavate area equal to the thickness of required topsoil and protection.
- D. Place topsoil as shown on plans.
- E. Rake in fertilizer; apply at the rate of 15 lbs. per 1,000 sq. ft.
- F. Seed topsoil with ditch bank seeding mix at a rate of 6 pounds per 1,000 sq. ft.
- G. Place erosion control blanket over seeded areas.
- H. Place metal pins over seeded areas 2.0 ft. on centers. As approved by Engineer.

END OF SECTION

SECTION 02279

FILTER FABRIC

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. Filter fabric for cobblestone splash pads.
- B. Filter fabric for plain riprap bank and grade protection.
- C. Filter fabric for plain riprap spillways.
- D. Filter fabric for standard pipe outlet.

1.2. RELATED SECTIONS

- A. Section 02271 – Slope Protection and Erosion Control
- B. Section 02715 – Lateral Tile Drains.

1.3. 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.

1.4. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Filter Fabric:
 - 1. Basis of Measurement: Included in unit price for all bid items requiring use of riprap or filter fabric.
 - 2. Basis of Payment: Includes material, labor, and equipment for installation according to drawings, specifications, and manufacturers instructions.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. Mechanically bonded, non-woven, long-chain polymeric fibers or yarns.
 - 1. Filter fabric for groundwater infiltration (french drains, trench drains, pipe joint wrap, bag riprap headwalls, 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)	0.210 mm
Coef. of Permeability	0.15 cm/sec

2. Filter fabric for plain riprap grade and bank protection, riprap spillways, cobblestone splash pads and bag riprap headwalls 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)	0.210 mm
Coef. of Permeability	0.15 cm/sec
Open Area	

3. PART 3 EXECUTION

3.1. EXAMINATION

- A. Verify the correct fabric is specified for the specific use.
- B. Beginning of installation means acceptance of existing conditions.

3.2. PREPARATION

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

3.3. STORAGE

- A. All geotextile material shall be stored in a wrap that protects it from ultraviolet radiation and abrasion.

3.4. INSTALLATION

- A. All joints/overlaps in material shall be a minimum of 1.5'.
- 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 specific use requirements.
- D. Edges of filter fabric shall be toed in 12 inches. Work will not pass inspection if filter fabric is not "toed in".

END OF SECTION

SECTION 02715

LATERAL TILE DRAINS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. Field tile outlets.
- B. Surface outlet tubes.
- C. Rodent Guards.
- D. Tile main.
- E. Cross culvert extension.

1.2. RELATED SECTIONS

- A. Section 02222 – Excavation.
- B. Section 02223 – Backfilling.
- C. Section 02271 – Slope Protection and Erosion Control.
- D. Section 02279 – Filter Fabric.
- E. Section 03001 – Concrete.

1.3. REFERENCES

- A. ASTM F405 – Corrugated Polyethylene Tubing.

1.4. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Field Tile Outlets (All Sizes):
 - 1. Basis of measurement: At the unit price bid for each, as stated in the proposal.
 - 2. Basis of payment: Includes material, labor, equipment for installation, rodent guard, connection to existing field tile, 14 feet of pipe, filter fabric, and concrete.

1.5. PROTECTION

- A. Care shall be taken to locate and excavate around all field tile outlets.
- B. Any damage to drainage tiles and outlets during construction shall be repaired. The work to be incidental to the project.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. Field Tile Outlets – Corrugated metal pipe, 16 gauge, 2 inches larger diameter than existing field tile, 2-2/3" x 1/2" corrugations (0.064 inches thick).

- B. Surface Outlet Tubes – Corrugated metal pipe, 16 gauge, 2-2/3" x 1/2" corrugations. See proposal for size.
 - C. Rodent Guard – Manufactured by pipe manufacturer and approved by the Engineer.
 - D. Concrete – See Section 03001 – Concrete.
 - E. Riprap Splash Pads – See Section 02271 – Slope Protection and Erosion Control.
 - F. Cross Culvert Extension – Corrugated metal pipe, M gauge 2 2/3" x 1/2" corrugations.
 - G. Fittings – Manufactured by pipe manufacturers according to ASTM Standards and approved by the Engineer.
 - H. Flap Gates – Match type and location of existing.
3. PART 3 EXECUTION/ For surface outlet tubes – Waterman F-10 with cast iron seat sized properly for 15" C.M.P
- 3.1. Tile Main – Perforated, corrugated plastic tubing.
 - 3.2. PREPARATION
 - A. Field location of all field tile outlets even if not indicated on plans.
 - B. Receive direction from Engineer as to which field tile outlets are in need of repair, unless indicated on the plans.
 - C. Coordinate locations of proposed surface outlet tube with Engineer prior to delivering material to site. Tubes may or may not be installed based on landowner preference.
 - 3.3. INSTALLATION FIELD TILE OUTLETS
 - A. Installation shall be as shown on the plans. See Section 02222 – Excavation and Section 02223 – Backfilling. Backfill material shall be Type D – native material.
 - B. Field tile extensions are to be laid at a slope of 0.10 percent at minimum to provide for positive drainage.
 - C. Field tile outlet is to be installed at a minimum of 1 percent slope to provide for positive drainage.
 - D. All joints between like materials shall be connected with a manufactured connector.
 - E. Connection between field tile and field tile outlet or other unlike materials shall be wrapped with filter fabric. Joint shall be backfilled with concrete to provide for a joint that will not leak. See Section 03001 – Concrete.
 - 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.
 - H. Cross culvert extension shall be connected to existing with prefabricated metal band and filter fabric for a soil tight joint.

3.4. RODENT GUARDS

- A. Rodent guards shall be placed on all tile outlets that have existing rodent guards which are cutoff, replaced, or extended during construction of this project.
- B. Rodent guards do not have to be installed in existing tile outlets, which are not cutoff, replaced, or extended during construction of this project.

3.5. INSTALLATION - SURFACE OUTLET TUBES

- A. Surface outlet tubes may be replaced with riprap spillways based on landowner's preference. Coordinate all installations with Engineer prior to delivering materials to site.
- B. Provide a minimum of 0.5 feet of fall in tube.
- C. Provide a minimum of 2' cover.
- D. Install prefabricated metal flared end section on inlet of tube.
- E. Install cobblestone splash pad with filter fabric at the outlet of the tube.
- F. Construct as shown on detail sheet of drawings, including emergency spillway.

END OF SECTION

SECTION 02751
DRAIN CROSSINGS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

- A. Drive, Farm, and Road Crossings.
- B. Salvageable Crossings.
- C. Unsalvageable Crossings.

1.2. RELATED SECTIONS

- A. Section 02110 – Site Clearing.
- B. Section 02211 – Rough Grading.
- C. Section 02222 – Excavation
- D. Section 02223 – Backfilling.
- E. Section 02271 – Slope Protection and Erosion Control.
- F. Section 02279 – Filter Fabric.
- G. Section 02923 – Landscape Grading.
- H. Section 02936 – Seeding.

1.3. SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Provide two (2) copies of permits for road and highway crossing permits to Engineer.

1.4. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Drive, Farm, and Road Crossings (All Sizes and Materials):
 - 1. Basis of Measurement: At the unit price bid per linear foot or each, as stated in the proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment for installation of culvert, removal of existing crossing (if any), backfill materials, filter fabric, grout, any prefabricated tees, gravel drive (if any), concrete drive (if any), bituminous drive or road (if any), base coarse (if any), wearing coarse (if any), sub-base underdrains, field tile connections and/or relocations and outlets, dewatering, and transportation of salvaged pipe and guard rails. In summary crossing, complete as shown on plans and in specifications except for headwalls and plain riprap.

- B. Clean Out Existing Crossing:
 - 1. Basis of Measurement: At the unit bid price for channel cleanout, as stated in the proposal.
 - 2. Basis of Payment: Includes material, labor, and equipment necessary to remove all sediment and debris to provide required flow lines in existing crossing to remain in place.

1.5. REFERENCES

- A. AASHTO M-219 and ASTM B746.
- B. ASTM B209.
- C. ASTM B789.
- D. ASTM B790.
- E. AASHTO Standard Bridge Specification - Section 12.7.
- F. MDOT 8.07.12 - Steel beam guardrail elements, hardware and steel sleeves.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. All joints must be banded according to manufacturers instructions and must be wrapped with filter fabric. Joints must fit with 0.15 feet.
- B. All bands will be a Contech Huggar or equal.
- C. All joints must be rerolled banded according to manufacturers instructions and must be wrapped with filter fabric.
- D. Pipe – Corrugated metal pipe – size, corrugations and gauge, as indicated on the plans.
- E. HDPE Dual Wall Pipe – Size as shown on plans, all pipe shall be ADS N-12 or equal.
- F. Backfill – See Section 02223 – Backfilling.
- G. “Galvatol” or equal galvanizing paint.
- H. Driveway Crossings.
 - 1. Pipe – Corrugated metal pipe – size, corrugations, and gauge, as indicated on the plans.
 - 2. Bedding – Type A – MDOT 6A stone for wet or poor soil conditions. Type B – MDOT Class IIA Granular Fill for dry conditions. The Engineer will determine wet, poor, or dry solid conditions.
 - 3. Backfill – As shown on plans.
 - 4. Drive Surface – As shown on plans.
- I. Farm Crossings.
 - 1. Pipe – Corrugated metal pipe – size, corrugations, and gauge, as indicated on the plans.
 - 2. Bedding – Type A – MDOT 6A stone for wet or poor soil conditions. Type B – MDOT Class IIA Granular Fill for dry conditions. The Engineer will determine wet, poor, or dry solid conditions.

3. Backfill – as shown on plans.
4. Drive Surface – Type D – Native material, unless otherwise indicated on plans. Material to be approved by the Engineer.

3. PART 3 EXECUTION

3.1. PREPARATION

- A. Contact Engineer forty-eight (48) hours prior to any work on crossings 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 other safety requirements of the Authority having jurisdiction have been met.
- G. Transport salvaged culverts to location for reinstallation.

3.2. INSTALLATION

- A. Special care shall be taken when storing, handling, and placing culverts so they are not dented, scaled, or the galvanized coating is not damaged.
- B. Excavate in accordance with Section 0225- Trenching.
- C. Backfill in accordance with Section 0223 – Backfilling.
- D. Assembly of crossings according to manufacturer's specifications.
- E. Excavate to required dimensions and remove existing culvert where applicable.
- F. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with Type A fill (wet excavation) or Type B fill (dry excavation) and compact to density equal to or greater than requirements for support of crossing and subsequent backfill material.
- G. Place bedding according to detail shown on plans.
- H. Compact all subsoil and bedding material to 95 percent of its maximum dry density in accordance with MDOT standard requirements.
- I. Place structure according to the planned elevations and alignment.
- J. Recess inverts of crossings, as shown on drawing.
- K. Backfill all areas with unfrozen materials.

- L. Repair drive surfaces to existing conditions and materials.
- M. Landscape areas as outlined in Section 02923 – Landscape Grading and Section 02936 – Seeding.

3.3. FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400 – Quality Control.
- B. Compaction testing will be performed in accordance with MDOT standard requirements.
- C. If tests indicate work does not meet specified requirements, remove work, replace, and retest at no cost to the Owner.
- D. Frequency of the tests: at the discretion of the Engineer.

3.4. PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01560 – Construction Facilities and Temporary Controls.
- B. Recompact fills subject to vehicular traffic.

3.5. CLEAN OUT EXISTING STRUCTURE

- A. Remove all sediment and debris from culverts to remain in place.
- B. Spoils and debris become the property of the Contractor.

3.6. UNSALVAGEABLE CROSSING

- A. Unsalvageable crossing become property of the Contractor.

END OF SECTION

SECTION 02923

LANDSCAPE GRADING

1. PART 1 GENERAL

1.1. WORK INCLUDED

- A. Finish grade subsoil and proof roll.
- B. Place, level, and compact topsoil.

1.2. RELATED WORK

- A. Section 01400 – Quality Control: Compaction requirements of backfill.
- B. Section 02211 – Rough Grading.
- C. Section 02223 – Backfilling.
- D. Section 02936 – Seeding: Finish ground cover.

1.3. SAMPLES

- A. Submit samples under provisions of Section 01400 – Quality Control.
- B. Submit 10 lb. sample of imported fill to testing laboratory, in air-tight containers.
- C. Disregard sample submission if recent test results are available for type of fill.

1.4. PROTECTION

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

1.5. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Landscape Grading:
 - 1. Basis of Measurement: Included in unit price bid for cleanup and restoration.
 - 2. Basis of Payment: Includes all labor, excavation, fill for landscape grading and grading necessary to obtain the required contours for drainage and replacement of necessary guard rail, mailboxes, and other landscaping necessary to return work area to preconstruction conditions. Includes final grading during construction or from settling. Includes installation of 4" of topsoil, which matches quality of existing topsoil in lawn areas.

2. PART 2 PRODUCTS

2.1. MATERIALS

- A. Topsoil: Min. 4" compacted depth.

- B. Topsoil: Imported, 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.
- C. Submit lab results or samples for testing as requested by the Owner or Engineer if imported topsoil is used.

3. PART 3 EXECUTION

3.1. INSPECTION

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

3.2. SUBSOIL PREPARATION

- A. Eliminate uneven areas and low spots. Remove debris, roots, branches, and stones in excess of 1/2 inch in size. Remove subsoil contaminated with petroleum products.
- B. Scarify sub-grade to depth of 4 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.3. PLACING TOPSOIL

- A. Place topsoil to a minimum 4" compacted depth in areas where seeding, sodding, and planting is scheduled.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of sub-grade.
- D. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.
- E. Manually spread topsoil around trees and plants to prevent damage.
- F. Lightly compact. Roll placed topsoil.
- G. Remove surplus subsoil and topsoil from site.
- H. Leave stockpile area and site clean and raked, ready to receive landscaping.
- I. Place required trees, shrubs, fences, and mailboxes in their proper locations.

3.4. TOLERANCES

- A. Top of Topsoil: Plus or minus 1/2 inch.

END OF SECTION

SECTION 02936

SEEDING

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Ditch Bank Seeding and Spoil Bank Seeding.
- B. Cleanup and Restoration.

1.2 RELATED SECTIONS

- A. Section 02110 – Site Clearing.
- B. Section 02222 – Excavation.
- C. Section 02223 – Backfilling.
- D. Section 02923 – Landscape Grading.

1.3 LUMP SUM – MEASUREMENT AND PAYMENT

- A. Ditch Banks and Spoil Seeding, Fertilizing, and Mulching:
 - 1. Basis of Measurement: At the lump sum bid price, as stated in the proposal.
 - 2. Basis of Payment: Includes labor, equipment, and material necessary to seed this project complete, which includes finished grading, topsoil, sub-soil, daily seeding, watering, and maintenance to provide for uniform grass growth and any re-seeding and erosion repair. Includes repair of filter strips, hydroseeding of drain along roads and yard areas, as shown on plans. Re-seeding and erosion repair is included to provide for uniform grass growth at the completion of the project and up to a one-year period after completion.
- B. Cleanup, and Site Restoration:
 - 1. Basis of Measurement: At the lump sum unit price, as stated in the proposal.
 - 2. Basis of Payment: Includes material, equipment, and labor to clean up and restore the project to original condition or better, grading, topsoil and removal of debris.

1.4 PROTECTION

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

1.5 QUALITY ASSURANCE

- A. 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.
- B. Provide engineer documentation stating the amount and type of seed, fertilizer, and mulch applied per acre.

- C. Coordinate seed mixture and application rate with the Engineer and provide to the Engineer seed mix tags.

1.6 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 01039.

1.9 MAINTENANCE SERVICE

- A. Maintain seeded and sodded areas immediately after placement until grass is well established, exhibits a vigorous growing condition and is accepted by Owner. Guarantee replacement of dead material for one year following acceptance.

2. PART 2 PRODUCTS

2.1 MATERIALS

- A. Topsoil:
 - 1. Reused – free of subsoil, roots, grass, excessive amount of weeds, stone, and foreign matter.
 - 2. Topsoil: Imported, 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.
 - 3. Topsoil furnished from outside the project limits shall be approved by the Engineer.
- B. Seed Mixture:
 - 1. The amount and type of seed for various soil types and applications is outlined in Table 1, 2, and 3. (Reference: USDA-SCS-Michigan Technical Guide Section IV, Notice 71-2/88)
- C. Fertilizer:
 - 1. Apply 500 pounds per Acre (12 pounds per 1000 Sq. Ft.) of 12-12-12 commercial grade fertilizer or equal.
- D. Mulch:
 - 1. Apply 1200 pounds per acre (28 pounds per 1000 Sq. Ft.) of cellulose fiber mulch for hydroseeding operations or straw.
 - 2. Blown straw mulch is required for daily seeding operations of ditch bank.

- E. Tackifier:
1. Apply 480 gallons per acre (12 gallons per 1000 Sq. Ft.) for hydroseeding operations.
 2. Tackifier is not required for hand seeding operations.
- F. Temporary Erosion Control Blanket with wooden stakes:
1. North American Green 5150 or equal.
 2. Wooden stakes.

TABLE 1

Site	Landscape Seeding	Ditch Bank & Spoil Bank Seeding	Grassed Waterways Diversions, Filter Strips
Well and moderately well drained sand and loamy sand (coarse textured soils)	sunny-1, shady-2 or 4	4 or 6	4
Well and moderately well drained, moderately coarse to moderately fine textured soils (sandy loam, loam, silt loam, and clay loam)	sunny-1, shady-2 or 5	4, 7, 8, 9, or 19	11, 13, 17, 20
Well and moderately well drained clay and silty clay (fine textured soils)	sunny-1, shady 2 or 5	7, 8, 9, 13, or 19	11, 13, 17, 20
Somewhat poorly drained or poorly drained soils without artificial drainage <u>a/</u>	3 or 5	8, 10, 13, or 16	17, 18
Organic soils <u>a/</u>	3	10, 16, or 18	-

a/ With artificial drainage, use the appropriate site condition in the well-drained groups above.

b/ Mixtures one and two can be used on grassed waterways that are to be given care and management as a lawn.

TABLE 2

Under the seed mixture number selected in Table 1, use all species shown in that column. For example: for Table 1, seeding no. 6, the correct seeding mixture is 100 lbs. of creeping red fescue, 201 lbs. of perennial rye grass and 80 lbs. of tall fescue. These are minimum rates for ideal conditions. Use judgment to increase rates for less than ideal conditions.

MINIMUM SEEDING MIXTURES - Pounds Per Acre

Species	Seed Mixtures from Table 1*																
	1	2	3	4	5	6	7	8	9	10	11	13	16	17	18	19	20
Creeping red fescue**	80	120	40	160		100		80									
Perennial ryegrass	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Kentucky bluegrass	80	40	100					20									
Redtop**								4					4	8	8		
Red canary-grass**										40			40				
Highland or seaside bentgrass											4	4					
Smooth bromegrass**											120	60		100			80
Tall fescue					200	80		80	40			60			120	60	80
Timothy**							12	8					16				
Birdsfoot trefoil (a)**							40	40			(b)	(b)		(b)	(b)	40	(b)
Crownvetch (a)**									60								
TOTAL POUNDS	180	180	160	180	220	200	72	252	120	60	164	144	80	128	148	120	180

- (a) Inoculate all legume seed with correct inoculant.
- (b) Twenty-four (24) pounds of birdsfoot trefoil may be included in grassed waterway mixes.
- * Seeding rates have been rounded off.
- ** Indicates species best suited for wildlife cover.

TABLE 3

Under the seed mixture number selected in Table 1, use all species shown in that column. For example: for Table 1, seeding no. 6, the correct seeding mixture is .6 lbs. of creeping red fescue plus .2 lbs. of perennial ryegrass and .5 lbs. of tall fescue. These are minimum rates for ideal conditions. Use judgment to increase rates for less than ideal conditions.

MINIMUM SEEDING MIXTURES - Pound Per 1000 Square Feet

Species	Seed Mixtures from Table 1*																	
	1	2	3	4	5	6	7	8	9	10	11	13	16	17	18	19	20	
Creeping red fescue**	2.0	2.8	1.2	4.0		2.4		2.0										
Perennial ryegrass	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	
Kentucky Bluegrass	2.0	1.2	2.4					.8					1.6					
Redtop**								.12						.2	.2			
Reed canary grass										1.2								
Highland or Seaside bentgrass											.12	.12	.12					
Smooth brome-grass**											2.8	1.6	.12				2.0	
Tall fescue					4.8	2.0		2.0	1.2				1.6			2.8	1.6	2.0
Timothy **							.4	.2										
Birdsfoot trefoil (b)**							1.2	1.2			(b)	(b)		(b)	(b)	1.2	(b)	
Crown-vetch (b)**									1.6									
TOTAL LBS	4.6	4.6	4.2	4.6	5.4	5.0	2.2	6.92	3.4	1.8	4.32	4.72	2.44	1.6	4.4	3.4	4.6	

- (a) Inoculate al legume seeds with correct inoculant.
- (b) 0.8 pounds of birdsfoot trefoil may be included in grassed waterway mixes.
- * Seeding rates have been rounded off.
- ** Indicates species best suited for wildlife cover.

PART 3 EXECUTION

2.2 EXAMINATION

- A. Landscape Seeding – Verify that prepared soil base is ready to receive the work of this section. See Section 02923 – Landscape Grading.
- B. Ditchbank and Spoil Bank Seeding – Verify that excavation work has been completed according to the plans and specifications. See Section 02222 – Excavation.

2.3 SEEDING (Hand Seeding)

- A. Daily seeding and fertilizing shall be done, as areas are ready for seed.
- B. Additional seeding is required until uniform growth of grass is established.
- C. Apply seed at the rate specified in Tables 1, 2, and 3 evenly in two intersecting directions. Rake in lightly.
- D. Seeding shall be done between May 15th and October 15th. Seeding Tables 1, 2, and 3 done before or after these dates may require reseeding at the discretion of the Engineer.

2.4 MAINTENANCE

- A. Immediately reseed areas, which show bare spots.
- B. Repair any eroded areas and reseed immediately.
- C. Final payment will not be issued until a uniform growth of grass is established on all areas disturbed as a result of the construction of this project.

END OF SECTION

SECTION 03001

CONCRETE

1. PART 1 GENERAL

1.1. WORK INCLUDED

- A. Formwork, shoring, bracing, and anchorage
- B. Concrete reinforcement and accessories
- C. Cast-in-place concrete
- D. Control, expansion and contraction joint devices, associated with concrete work, including backer rods and joint sealants
- E. Non-shrink grout
- F. Anchor bolts

1.2. WORK INSTALLED BUT FURNISHED UNDER OTHER SECTIONS

- A. Section 05500 – Metal Fabrications

1.3. RELATED SECTIONS

- A. Section 01300 – Submittals: Concrete Mix Designs and Reinforcing Steel Shop Drawings
- B. Section 01400 – Quality Control: Concrete Testing
- C. Section 02223 – Backfilling
- D. Section 02522 – Concrete Sidewalks
- E. Section 02520 – Portland Cement Concrete Paving
- F. Section 02575 – Pavement Repair
- G. Section 02722 – Site Storm Sewerage Systems
- H. Section 02732 – Sanitary Sewerage Systems

1.4. UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Concrete:
 - 1. Basis of Measurement: Included in the unit price bid for other pay items.
 - 2. Basis of Payment: Includes all material, labor, equipment, excavation, hand digging and filter fabric required for placement of concrete associated with: concrete collars, bulkheading of storm sewers and any other miscellaneous placement of concrete on this project.

1.5. REFERENCES

- A. ACI 301 – Specifications of Structural Concrete for Buildings
- B. ACI 302 – Guide for Concrete floor and Slab Construction
- C. ACI 304 – Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete
- D. ACI 305R – Hot Weather Concreting
- E. ACI 306R – Cold Weather Concreting
- F. ACI 308 – Standard Practice for Curing Concrete
- G. ACI 318 – Building Code Requirements for Reinforced Concrete
- H. ACI 347 – Recommended Practice for Concrete Formwork
- I. ACI SP-66 – American Concrete Institute - Detailing Manual
- J. ANSI/ASTM A185 – Welded Steel Wire Fabric for Concrete Reinforcement
- K. ASTM A615 – Deformed and Plain Billet-Steel for Concrete Reinforcement
- L. ASTM C33 – Concrete Aggregates
- M. ASTM C94 – Ready-Mixed Concrete
- N. ASTM C150 – Portland Cement
- O. ASTM C260 – Air Entraining Admixtures for Concrete
- P. ASTM C309 – Liquid Membrane-Forming Compounds for Curing Concrete
- Q. ASTM C494 – Chemicals Admixtures for Concrete
- R. ASTM D994 – Preformed Expansion Joint Filler for Concrete (Bituminous Type)
- S. ASTM D2103 – Polyethylene Film and Sheeting
- T. CRSI – Concrete Reinforced Steel Institute Manual of Practice
- U. FS TT-C-800 – Curing Compound, Concrete, for New and Existing Surfaces
- V. MDOT "2003 Standard Specifications for Construction"

1.6. QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301, ACI 308, ACI SP-66, and CRSI Manual of Practice.
- B. Maintain one (1) copy of each document on site.
- C. Acquire cement and aggregate from same source for all work.

- D. Conform to ACI 305R when concreting during hot weather.
- E. Conform to ACI 306R when concreting during cold weather.
- F. Perform work in accordance with MDOT Standard Specifications for Construction.

1.7. DESIGN REQUIREMENTS

- A. Design, engineer, and construct formwork, shoring, and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line, and dimension.

1.8. REGULATORY REQUIREMENTS

- A. Conform to applicable ACI 301 code for design, Municipal Codes, fabrication, erection and removal of formwork.

1.9. SHOP DRAWINGS

- A. Formwork: Indicate formwork dimensioning, materials, and arrangement of joints and ties.
- B. Reinforcement: Indicate sizes, spacings, locations, quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing and supporting and spacing devices.
- C. Prepare shop drawings in compliance with ACI 318, CRSI and ACI SP-66. Use acceptable detailing practices and maintain consistency of shop drawings throughout the project.
- D. Locate reinforcing splices not indicated on drawings, at point of minimum stress.

1.10. SUBMITTALS

- A. Submit product data and shop drawings under provisions of Section 01300.
- B. Submit proposed mix design of each class of concrete for review by Engineer prior to commencement of work.
- C. Product data: Provide data on joint materials, attachment accessories and admixtures.

1.11. FIELD QUALITY CONTROL

- A. Field inspection and testing and analysis of concrete will be performed in accordance with ACI 301 and under provisions of Section 01400 – Quality Control.
- B. Provide free access to Work and cooperate with Engineer.
- C. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
- D. Engineer will take cylinders and perform slump [and air entrainment] tests in accordance with MDOT Standards.
- E. Three (3) concrete test cylinders will be taken for every 100 or less cu yds. of each class of concrete placed each day.

- F. One (1) additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. One (1) slump test will be performed for each set of test cylinders taken.
- H. One (1) air entrainment test will be performed for each set of test cylinders taken.
- I. Samples for strength tests of each class of concrete will be taken not less than once a day. Each sample will consist of three (3) cylinders. In special cases, this normal number of samples may be exceeded when, in the opinion of the Engineer, such additional tests are necessary. The Contractor, however, shall not be required to furnish for such additional tests more than 2 cubic feet of concrete from each 100 cubic yards of concrete being placed. One (1) cylinder shall be tested when it is seven (7) days old; two (2) cylinders shall be tested when they are twenty-eight (28) days old.

2. PART 2 PRODUCTS

2.1. CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I with air entraining admixture, Portland type. Use one brand and type of cement throughout project.
- B. Cement: ASTM C150, [normal-Type I]*+ [moderate-Type II]*+ Portland, with air entraining admixture, grey color.
- C. Coarse Aggregate: 100% crushed limestone MDOT 6AA; following ASTM C33.
- D. Fine Aggregate: ASTM C33 and MDOT 2NS.
- E. Coarse Aggregate: ASTM C33 and MDOT 6AA.
- F. Water: Clean, potable, and not detrimental to concrete.
- G. Air Entrainment: ASTM C260, manufactured by W.R. Grace and Company.
- H. Water Reducing Admixture: ASTM C494, Type A, manufactured by W. R. Grace and Company, Axim Concrete Technologies, or equal.
- I. Set Retarding Admixture: ASTM C494, Type D, manufactured by W.R. Grace and Company, Axim Concrete Technologies or equal.
- J. Fly Ash: ASTM C618.
- K. Chloride based admixtures are prohibited in all reinforced concrete.
- L. Flowable fill shall consist of a mixture of Portland concrete, fly ash, sand, and water.
- M. All flowable fill (non-structural) is intended to be removable using conventional mechanical methods.

2.2. CONCRETE MIX

- A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.
- B. Select proportions for normal weight concrete in accordance with ACI 301 Method 1.

- C. Use accelerating admixtures in cold weather only when approved by Engineer. Use of admixtures will not relax cold weather placement requirements.
- D. Use set retarding admixtures during hot weather only when approved by Engineer.
- E. Use Type I cement with air entraining admixtures conforming to ASTM C260, air entraining Portland cement shall contain an underground addition conforming to the requirements of ASTM C226.

CONCRETE CLASSES

- A. Class A (Structural):
 - 1. Compressive Strength
 - a. (7 days): 2600 psi
 - 2. Compressive Strength
 - a. (28 days): 4000 psi
 - 3. Slump: 4 - 2 inch
- B. Concrete Class B
 - 1. Compressive Strength
 - a. (7 days): 2400 psi
 - 2. Compressive Strength
 - a. (28 days): 3500 psi
 - 3. Slump: 5 - 2 inch
- C. Class C (Fill):
 - 1. Compressive Strength
 - a. (7 days): 1300 psi
 - 2. Compressive Strength
 - a. (28 days): 2000 psi
 - 3. Slump: 6-3 inch
- D. Flowable Fill (Non-Structural)
 - 1. Compressive Strength
 - a. (7 days): Not applicable
 - 2. Compressive Strength
 - a. (28 days): ≤ 1200 psi
 - 3. Slump: Not applicable
- E. All concrete exposed to weathering shall be air entrained with 5% to 8% total air content by volume.
- F. Use no admixtures unless previously approved by Engineer.
- G. Mix flowable fill according to the following proportions

1.	Portland Cement	50 lb / cyd	
2.	Fly Ash (Class F or C)	500 lb / cyd	
3.	Sand	2850 lb / cyd	
4.	Water	376 lb / cyd	Approximately
	(Additional water as needed to produce desired flowability)		

2.3. FORM MATERIALS

- A. Plywood Forms: 5 ply Douglas Fir species; solid one side, sound undamaged sheets with clean true edges.
- B. Lumber: Pine species; No. 2 grade, with grade stamp clearly visible.
- C. Conform to ACI 301 and MDOT Standards.
- D. Steel Forms: Smooth, true, and undamaged stiffened to support weight of concrete with minimum deflection.
- E. Glass Fiber Reinforced Resin Type: Preformed shape, stiffened to support weight of concrete with minimum deflection.
- F. Tubular Column Type: Round, spirally wound laminated fiber material; inside surface treated with release agent.
- G. Form Ties: Snap-off metal, of fixed length.

2.4. REINFORCING STEEL

- A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; billet steel plain and deformed bars, plain finish, straight and bent bars.
- B. Reinforcing Steel: ASTM A616, 60 ksi yield grade; deformed rail steel bars, plain finish, straight bars only.
- C. Reinforcing Steel Mat: ASTM A615, 60 ksi yield grade; steel bars or rods, plain finish.
- D. Stirrup Steel: ASTM A82, plain finish.
- E. Welded Steel Wire Fabric: ASTM A185 Plain Type, flat or coiled rolls; plain finish.
- F. Smooth Straight Dowels: ASTM A615, 60 ksi yield grades; smooth, plain billet steel bars.

2.5. REINFORCEMENT STEEL ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions. Plastic coated if adjacent to weather exposed concrete surfaces.
- C. Mechanical Splice: Threaded Coupler – Grip-Twist System manufactured by Bar Splice Inc., Dayton, OH; Dowel Bar Splice – Dowel Bar Splicer System manufactured by Richmond Screw Anchor Co., Ft. Worth, Texas or Ebea continuity strips (#4 bars and less) by Universal Form Clamp Company of Michigan, Lansing, MI.

2.6. REINFORCEMENT STEEL FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI SP-66, ACI 318, ASTM A184 and CRSI Manual of Practice.

- B. Locate reinforcing splices not indicated on Drawings, at point of minimum stress. Review location of splices with Engineer.

2.7. ACCESSORIES

- A. Non-shrink grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days; five-star grout manufactured by W.R. Meadows, Inc.
- B. Grout: Shall contain Type I cement with 3/8 inch MDOT approved 26A coarse aggregate and MDOT approved 2NS fine aggregate sand. Admixtures shall include fly ash - Type F and Catexol 1000N normal-setting admixture by Axim Concrete Technologies or equal. Grout shall achieve a minimum of 4000 psi compressive strength in twenty-eight (28) days.
- C. Form release agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete; manufactured by W.R. Meadows, Inc., or equal.
- D. Bonding Agent: Three component modified epoxy resin; Sika Armatec 110 EpoCem manufactured by Sika Corporation.
- E. Joint Sealer: Polyurethane, liquid chemical grout; SikaFix HH manufactured by Sika Corporation.
- F. Concrete Repair:
 - 1. Two-component polymer modified Portland cement. SikaTop 122 plus manufactured by Sika Corporation.
 - 2. Epoxy cement-resurfacing mortar. Sikadur 45 EpoCem manufactured by Sika Corporation.
- G. Epoxy Adhesive: Two-component epoxy resin; Sikadur 32 Hi-Mod LV manufactured by Sika Corporation.
- H. Epoxy Adhesive: Two components epoxy resin adhesive; Sikadur 35, Hi-Mod LV manufactured by Sika Corporation, Glendale Hts., IL (708) 924-7900.
- I. Exposed Corners: Chamfered, wood strip type 1-inch x 1-inch size.
- J. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
- K. Form Ties: Steel construction of adequate strength and of suitable design. Wire ties will not be permitted. Use one inch deep break off ties for hydraulic structures and 1/2" in dry locations.
- L. Dovetail Anchor Slot: Galvanized steel, 22 gage thick, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- M. Adhesive Anchors: Hilti HVA adhesive anchoring system. Hilti adhesive anchors shall be comprised of an HEA capsule with an ASTM A193, Grade B7, HAS stainless steel rod assembly with stainless steel ASTM F594 nuts and ASME B18.221 (1965), Type A, plain washers under the turned element. Install per manufacturer's specifications.

- N. Bonding Agent: Two component modified epoxy resin; Sikadur 32 Hi-Mod manufactured by Sika Corp; concressive 1001 LPL, 3007 manufactured by Structural Bonding Company or equal.
- O. Construction Joints: ANSI/ASTM D1751 type; ¼ inch to 1 inch thick, manufactured by A.C.D. International or equal.

2.8. JOINT DEVICES AND FILLER MATERIALS

- A. Isolation Joint Filler Type A: ASTM D1751. Asphalt impregnated fiberboard or felt, manufactured by W.R. Meadows, or equal.
- B. Joint Sealant: Dow Corning brand silicone, cold-pour, single component, self-leveling, low modulus sealant material.
- C. Backer Rods: Polyethylene foam, moderately compressible used for cold-pour sealants only.

2.9. CURING MATERIALS

- A. Water: Clean and drinkable
- B. Absorptive mat: Cotton fabric of 8 ounces per square yard, clean, rolls goods.
- C. Absorptive mat: Burlap-polyethylene 8 ounce/square yard, bonded to prevent separation during use.
- D. Absorptive Mat: ASTM C171, cotton fabric or burlap-polyethylene 8 oz/sq yd, bonded to prevent separation during use.
- E. Membrane curing compound: ASTM C309, Type I, Class B clear, non-yellowing curing and sealing compound; manufactured by W.R. Meadows, Inc. (708) 683-4500.
- F. Membrane Curing Compound: ASTM C309, Type 2, Class B, white-pigmented finish for exterior use, manufactured by W.R. Meadows or equal.
- G. Polyethylene film: ASTM D2103, 6-mil clear color.

2.10. ANCHOR BOLTS

- A. A307 material: Furnish to the project site anchor bolts, complete with nuts and washers as required. Mark bolts per the shop drawings for bolt installation.

2.11. ADMIXTURES.

- A. Fiber Reinforcement: 1/2 inch polypropylene fibers by Fibermesh Company or Equal.
- B. Air Entrainment: ASTM C260; manufactured by W.R. Grace and Company or Axim Concrete Technologies.
- C. Chemical: ASTM C494, Type A – Water Reducing admixture; manufactured by W.R. Grace and Company or Axim Concrete Technologies.
- D. Fly Ash: ASTM C618.
- E. Chloride based admixtures are prohibited in all reinforced concrete.

2.12. CONCRETE HARDENER

- A. Colorless, sprayable, fluo-silicate base solution.
- B. Product: Lapidolith, as manufactured by Sonneborn Chemical and Refining Corporation, or equal.

3. PART 3 EXECUTION

3.1. REINFORCEMENT

- A. Place, support, and secure reinforcement against displacement.
- B. Notify Engineer one (1) working day prior to placing concrete to check reinforcement.
- C. Locate reinforcing splices at locations indicated on the shop drawings.

3.2. EXAMINATION

- A. Perform work in accordance with ACI and ASTM codes, except as amended by this Section.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.
- D. Submit all proposed changes to anchorage system in writing to the Engineer. Written approval from the Structural Engineer must be obtained prior to construction.
- E. This structure is designed to be self-supporting and stable after it is fully completed. It is solely the Contractor's responsibility to determine erection procedures and sequence and to insure the stability of the structure, its component parts, and the adequacy of temporary or incomplete connections during erection. This includes the addition of whatever temporary bracing, guys, or tie-downs that might be necessary. These items stated are not shown on the drawings. Items added to the structure, as noted above, shall be removed as conditions permit, and shall remain the contractor's property.

3.3. PREPARATION

- A. Remove hardened concrete and foreign materials from the inner surfaces of the mixing and conveying equipment.
- B. Remove debris from the space to be occupied by the concrete. Secure reinforcement in position and obtain approval of the Engineer before concrete.
- C. Remove water from the space to be occupied by the concrete before concrete is deposited. Divert flow of water into a sandbag trench or remove by approved methods in order to avoid washing the freshly deposited concrete. If directed by the Engineer, water vent pipes and drains shall be filled by grouting or other means after the concrete has thoroughly hardened.

- D. Before depositing new concrete on or against concrete, which has hardened, roughen the hardened concrete in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. Thoroughly clean concrete of foreign matter and laitance and saturate with water. To ensure an excess of mortar at the juncture of the hardened and the newly deposited concrete, the cleaned and saturated surfaces, including vertical and inclined surfaces, shall first be thoroughly covered with a coating of mortar or neat cement grout against which the new concrete shall be placed before the grout has attained its initial set.
- E. Unless otherwise noted, give surfaces of existing concrete, against which new concrete will be placed, a heavy brush coat of epoxy bonding agent. Apply in accordance with manufacturer's instructions. Submit manufacturer's instructions to Engineer prior to application.
- F. In locations where new concrete is doweled to existing work, drill holes in existing concrete and install steel dowels by an adhesive by an anchoring system, per manufacturer's instructions, as noted on the Drawings.

3.4. FORMWORK ERECTION

- A. Clean and remove foreign matter within forms as erection proceeds.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 301. Unless noted otherwise, all work shall be formed.
- D. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads. Earth forms, if approved by the Engineer, shall be hand trimmed both sides and bottom. Remove loose soil.
- E. Arrange and assemble formwork to permit dismantling and stripping.
- F. Align joints and make watertight. Keep form joints to a minimum.
- G. Obtain approval before framing openings in structural members, which are not indicated on Drawings.
- H. Provide 3/4-inch chamfer strips on external corners of concrete visually exposed.
- I. The Drawings show the location of the minimum number of construction joints required for the concrete work. Straight walls shall be cast in lengths not exceeding 40 feet horizontally and 25 feet vertically.
- J. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- K. Verify lines, levels, and measurement before proceeding with formwork.
- L. Hand trim sides and bottom of earth forms; remove loose dirt.
- M. Align form joints.
- N. Do not apply form release agent where concrete surfaces receive special finishes or applied coatings, which may be affected by agent.

- O. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- P. Install chamfered wood strips at all exposed corners, unless stated otherwise.
- Q. Install and secure formwork prior to placing concrete.

3.5. APPLICATION – FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with the manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive applied coverings, which area effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.6. INSERTS AND EMBEDDED PARTS

- A. Locate and set in place items that will be cast directly into concrete. Furnish all hardware in the completion of the work. All items of miscellaneous metals shall be positioned within the forms and cast into concrete.
- B. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.7. REINFORCEMENT PLACEMENT

- A. Prior to placement, clean reinforcing steel and dowels of loose rust, scale, dirt, grease, and other materials, which could reduce or destroy bond.
- B. Place, support, and secure reinforcement against displacement. Do not deviate from required position. Accommodate placement of formed openings. Maintain minimum concrete cover around reinforcing of 2 inches unless shown otherwise on the drawings.
- C. Provide lap length of 35 times the bar diameter or with applicable modifiers at splice locations.
- D. Notify Engineer two (2) working day prior to placing concrete to check reinforcement.

3.8. PLACING CONCRETE

- A. Notify Engineer minimum forty-eight (48) hours, two working days, prior to commencement of concreting operations. Approval of reinforcing steel and formwork placement must be obtained prior to commencement of concreting operation.
- B. Place concrete in accordance with ACI 304 and ACI 301.
- C. Ensure reinforcement, inserts, embedded parts, and formed joint fillers are not disturbed during concrete placement.
- D. Install joint fillers, primer, and sealant in accordance with manufacturer's instructions.
- E. Install joint devices in accordance with manufacturer's instructions.

- F. Install construction joint device in coordination with floor slab pattern placement sequence. Set top of device to required elevations. Secure to resist movement by wet concrete.
- G. Install joint device anchors. Maintain correct position to allow joint cover flush with floor and wall finish.
- H. Install vapor barrier under interior floor slabs on fill. Lap joints minimum 6 inches and seal. Do not disturb vapor barrier while placing reinforcement.
- I. Apply sealants in joint devices in accordance with manufacturer's instructions.
- J. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- K. Concrete shall be vibrated into place with appropriate equipment to ensure that all voids within the formwork are completely filled with fresh concrete.
- L. Do not interrupt successive placement; do not permit cold joints to occur.
- M. Thoroughly compact concrete immediately after placing by means of mechanical vibrators or other suitable tools approved by the Engineer.
- N. Concrete transported in a truck mixer, agitator, or other transportation device shall be discharged at the job within 1-1/2 hours after the cement has been added to the water or aggregates.
- O. Produce and deliver the flowable fill at a minimum temperature of 50°F.
- P. Saw cut control joints at an optimum time after placing. Using 3/16-inch thick blade, cut into 1/4 depth of slab thickness.
- Q. When hand mixing is authorized, it shall be done on a watertight platform and in such a manner as to ensure a uniform distribution of the materials throughout the mass. Mixing shall continue until a homogeneous mixture of the required consistency is obtained.
- R. Re-tempering of partially hardened concrete or mortar will not be permitted.

3.9. EXISTING WORK

- A. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack with non-shrink grout.
- B. Prepare previously placed concrete by cleaning with steel brush and apply bonding agent in accordance with manufacturer's instructions.
- C. All reinforcement exposed after demolition of the existing structure shall be immediately epoxy coated to protect from rust.

3.10. CONCRETE FINISHING

- A. Unformed Surface Finishes:
 - 1. Floated Finish: Place, consolidate, strike off, and level concrete. After the concrete has stiffened sufficiently, floating shall begin using a hand float, power trowel with float shoes, or powered disc float. Cut down high spots and fill low spots to a 1/4-inch in 10-foot tolerance. Float to a uniform sandy texture.

2. Troweled Finish: After a floated finish, provide a smooth surface, free of defects with a steel trowel. Follow the first troweling with a second troweling after the concrete has hardened sufficiently to produce a ringing sound as the trowel is moved over the surface. The finish surface shall be essentially free of trowel marks, uniform in texture and appearance and shall be plane to a 1/8 inch in 10-foot tolerance.
 3. Broomed Finish: After receiving the floated and troweled finishes, apply a broomed finish with a fiber-bristle brush in a direction transverse to the line of traffic.
- B. Formed Surface Finishes
1. Plain Finish: Immediately after removal of forms, all fins and loose material shall be removed and all holes, voids, aggregate pockets, and depressions shall be cut out to solid concrete. All such defective areas shall be cleaned and wetted thoroughly and immediately be brushed with neat cement and filled with Portland Cement grout finished, flush with the adjacent surfaces. Patchwork shall be damp cured for a period of forty-eight (48) hours and, when exposed, it shall be finished to match adjacent surfaces.
 2. Rubbed Finish: All form marks and other such irregularities shall be removed by rubbing the surface with a Carborundum stone and water as soon as practical after form removal.
 3. Bagged Finish: All formed surfaces, which are not earth backfilled, shall receive a bagged finish. All air and water voids shall be finished flush with the wall surface. The wall shall first be moistened with water. Portland Cement grout matching the color of the base concrete shall be worked into the voids using burlap or sponge rubber finishing pads.
 4. Rough form finish: No selection form facing material specified, patch tie holes and defects; remove fins exceeding 1/4 inch in height.
 5. Smooth form finish: Use selected forms producing a smooth, hard, uniform texture on the concrete. Patch tie holes and defects; completely remove all fins and burrs.
- C. Provide formed concrete surfaces subject to backfill with a smooth form finish and a smooth rubbed finish.
- D. Provide formed concrete surfaces not subject to backfill with a smooth form finish and a bagged finish.
- E. Provide a broom finish for areas directed by the Engineer.
- F. Finish concrete floor surfaces in accordance with ACI 301.
- G. Provide a troweled finish for base slabs.
- H. Provide a floated finish for slabs as directed by the Engineer.
- I. Provide a broom finish for exterior slabs, sidewalks, pavements and where directed by the Engineer.

- J. Provide a scratched finish where concrete is specified to receive a subsequent concrete tapping.
- K. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at one inch per 10 feet unless otherwise indicated on drawings.
- L. Maximum variation of surface flatness for exposed concrete floors 1/8 inch in 10 feet.

3.11. PLACING SEALANTS

- A. Install sealant in accordance with the manufacturer's instructions.
- B. Assure surfaces for sealants are dry and cleaned of curing compound, residue, or any other foreign material.
- C. Cleaning shall be done by sand blasting, water, compressed air, or other approved methods.
- D. Do not place sealant during cold weather.
- E. Ensure sealant material is not spilled on top of exposed surfaces of concrete.

3.12. CURING AND PROTECTION

- A. Protect finished Work under provisions of Section 01500.
- B. Submit methods for curing for approval by the Engineer.
- C. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- D. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- E. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions. Curing compound shall not contain any ingredients that might stain or otherwise injure the concrete or prevent a good bond for subsequent coatings or finishes.
- F. Failure to comply with the curing requirements of this section shall be considered a major deviation of the contract requirements and shall be sufficient grounds to reject the work.
- G. Curing Methods:
 - 1. Horizontal Surfaces
 - a. Ponding: Maintain 100 percent coverage of water over floor slab areas continuously for four (4) days.
 - b. Spraying: Spray water over floor slab areas and maintain wet for seven (7) days.
 - c. Absorptive Mat: Spread cotton fabric over floor slab areas. Spray with water until mats are saturated, and maintain in saturated condition for seven (7) days.
 - d. Absorptive Mat: Saturate burlap-polyethylene mat and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place for seven (7) days.

- e. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions.
- 2. Vertical Surfaces
 - a. Spraying: Spray water over floor slab areas and maintain wet for seven (7) days.
 - b. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions.
- H. Failure to comply with the curing requirements of this section shall be considered a major deviation of the contract requirements and shall be sufficient grounds to reject the Work.

3.13. FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and tolerance testing has been completed.
- B. Results of tests may be used to verify the strength gain of the concrete prior to removal of forms. Contractor shall be responsible for coordination of and payment for additional test cylinders requested for this purpose.
- C. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- D. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

3.14. CONSTRUCTION JOINTS

- A. Make joints in accordance with standard practice. Install water-stops in joints of structures subject to hydraulic forces. Seal joints indicated on the plans or designated by the Engineer.

3.15. PATCHING

- A. Allow the Owner's Representative to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Owner's Representative upon discovery.
- C. Patch imperfections in accordance with ACI 301.

3.16. DEFECTIVE CONCRETE

- A. Defective concrete: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
- B. The Owner's Representative will determine repair or replacement of defective concrete.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Owner's Representative for each individual area.

3.17. CONCRETE SCHEDULE

- A. Class A
 - 1. Proposed inlet structure
 - 2. Retaining Walls
 - 3. Steps
 - 4. Driveways
- B. Class B
 - 1. Sidewalk
 - 2. Retainage walls
 - 3. Slabs
 - 4. Curb and gutter
 - 5. Post anchorages
- C. Class C
 - 1. Fill underneath spillway
 - 2. Mud mats
- D. Class D
 - 1. Filling of abandoned utilities

3.18. CONCRETE FINISHING SCHEDULE

- A. Unformed Surface Finishes.
 - 1. Floated Finish: Inlet structure
 - 2. Troweled Finish: Inlet structure
 - 3. Broomed Finish: Sidewalk, pavement horizontal surfaces of dam
- B. Formed Surface Finishes
 - 1. Plain Finish: Vertical faces of dam
 - 2. Rubbed Finish: Vertical faces of dam
 - 3. Bagged Finish: Retaining walls
 - 4. Rough Form Finish: As shown on plans
 - 5. Smooth form Finish: As shown on plans

3.19. FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed in accordance with ACI 301 and under provisions of Section 01400 – Quality Control.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Notify Engineer forty-eight (48) hours in advance of any scheduled placement of concrete.

END OF SECTION