

PROJECT MANUAL

Saginaw Township Community Schools

WHITE PINE MIDDLE SCHOOL PRACTICE FIELD REVISIONS PROJECT

**White Pine Middle School
505 N. Center Road
Saginaw, MI 48638**

January 16, 2026



William A. Kibbe & Associates, Inc.

Architects – Engineers – Consultants

1475 S. Washington Ave., Saginaw, Michigan 48601

Ph. (989) 752-5000

Fax (989) 752-5002

www.kibbe.com

WAK No.24-0088-0016

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SECTION 000200 - INVITATION TO BID

1.1 GENERAL

- A. The Saginaw Township Community Schools will be receiving sealed proposals for the Saginaw Township Community Schools – Practice Field Revisions, which includes goal post relocation, topsoil fill, seeding and irrigation sprinkler head adjustments. All work is located on the existing practice field north of the Middle School’s north parking lot.

- B. Owner requests proposals on Work as follows:

1. Project: Saginaw Township Community Schools – Practice Field Revisions
2. Project Address: 505 N Center Road
Saginaw, Michigan 48638
3. Owner: Saginaw Township Community Schools
4. Architect/Engineer: William A. Kibbe & Associates, Inc.
1475 S. Washington Avenue
Saginaw, MI 48601
Office: 989-752-5000
5. Sealed Bids Due: **By 2:00 pm Local Time, Wednesday, February 11, 2026**
6. Place Due: **William A. Kibbe & Assoc., Inc.
1475 S. Washinton Ave.
Saginaw, MI 48601**

Or my email to: jwheeler@kibbe.com
7. Type of Bidding: Prime/General Contract, to include All Trades Work
8. Label Sealed Bid: **SAGINAW TOWNSHIP COMMUNITY SCHOOLS
PRACTICE FIELD REVISIONS
“SEALED BID - DO NOT OPEN”**

- C. Sealed bid proposals must be on the forms furnished by the Architect/Engineer. Blank forms for bidding are included in the electronic bid documents, which can be obtained at the offices of:

1. William A. Kibbe & Associates
1475 S. Washington Avenue, Saginaw, MI 48601
Office 989-752-5000 | Fax 989-752-5002

2. PDF Files will be e-mailed to all bidders at no cost. If a printed set is requested they will be provided at the cost of printing and postage. Notify the Architect in advance to make sure the printed sets are available for pick up.

D. Bid Opening:

1. Bids will be publicly opened after receipt of bids.

E. Withdrawal:

1. Bids may not be withdrawn prior to 60 calendar days after actual date of opening bids.

F. Rejection:

1. Owner reserves the right to waive any informality or to reject any or all bids and to accept any bid deemed most advantageous to the Owner.

G. Bonding & Insurances:

1. 5% Bid Bond (NOT REQUIRED).
2. 100% Labor, Material & Performance Bonds will be (REQUIRED) for this project, from the accepted bidder.
3. Certificate of Insurance will be (REQUIRED) from the accepted bidder.

H. All other requirements for bidding are detailed in the Instruction to Bidders.

END OF SECTION 000200

SECTION 001000 - INSTRUCTIONS TO BIDDERS

1.1 GENERAL

- A. Saginaw Township Community Schools, (herein called the "Owner"), invites bids for construction of the "Practice Field Revisions" at the existing practice field north of the Middle School's north parking lot, per the Invitation for Bids.
- B. Bids will be received at the place and time indicated in Invitation for Bid.
- C. Where any Article of the General Conditions of the Contract is supplemented hereby, provisions of such article shall remain in effect. All supplemental provisions shall be considered as added thereto. Where any such article is amended, voided or superseded, the provisions of such article not so specifically amended, voided or superseded shall remain in effect.
- D. The Contractor shall provide all items, articles, materials, operations, or methods listed, mentioned or scheduled on the drawings, and/or herein, including all labor, materials, equipment, and incidentals necessary and required for their completion.
- E. For convenience of reference and to facilitate letting of subcontracts, the specifications located in this book specification & on the drawings, are separated into sections. Such separations shall not operate to make the Architect an arbiter or to establish subcontract limits between Contractor and Subcontractor.
- F. Submit a sealed envelope containing bid and address to:

ATTN: Saginaw Township Community Schools
c/o William A. Kibbe & Associates, Inc.
1475 S. Washington Ave.
Saginaw, MI 48601
ATTN: Jay Wheeler, PE

**SAGINAW TOWNSHIP COMMUNITY SCHOOLS
WHITE PINE MIDDLE SCHOOL
PRACTICE FIELD REVISIONS
"SEALED BID - DO NOT OPEN"**

- G. Bids will publicly open bids immediately thereafter.
- H. Owner invites the Bid on the "Practice Field Revisions" to include the work of all trades included in contract documents. Refer to bid form for specific requirements regarding bids, alternates, unit prices and cost breakdowns.
- I. Examination of Site:
 - 1. It is necessary for bidders to inform themselves of the conditions under which work is to be performed, the site of the work, the structure of the ground, the obstacles which may be encountered and all other relevant matters concerning

the work to be performed. The bidder, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such bidder might have become fully self-informed because of a failure to have so informed themselves prior to the bidding.

J. Preparation of Bid

1. Submit on forms furnished herein.
2. Fill out in ink or typewritten, without erasure, interlineation or changes.
3. Make Bid in name of principal and if co-partnership, give names of all parties. Give complete address. If bid is submitted by an agent, provide satisfactory evidence of agency authority.
4. Fill in all blank spaces for bid prices in both words and figures. Submit each bid in sealed envelope. Indicate on outside of envelope, name of bidder, bidders address, and name of project for which bid is submitted. If forwarded by mail, enclose sealed envelope containing bid in another envelope addressed indicated.
5. Bid must be received prior to due date and time indicated in Invitation for Bid.

K. Bid Guaranty / Security: **(NOT REQUIRED)**

1. ~~Proposal must be accompanied by a five percent (5%) bidder's bond, by an authorized surety company.~~
2. ~~The bid guaranty of all except the three (3) lowest accepted bidders will be returned within seven (7) days after opening of bids. Bid guaranty of accepted bidders will be returned after executed contract and required bonds have been finally approved by Owner. If no award has been made within sixty (60) days after the opening of bids, the bid security shall be returned upon demand of the bidder, so long as he has not been notified of the acceptance of his bid. If any bidder refuses to enter into a contract, the Owner will retain his bid security as liquidated damages, but not as a penalty.~~
3. ~~Sureties on all bonds must be acceptable to the Owner. U.S. Treasury Circular No. 570 lists approved sureties, states or licensure and underwriting limits. A copy of this circular may be obtained by writing to Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department, Washington, D.C. 20226. In addition, approved surety to be listed by A.M. Best as "B" rating or better and be licensed to operate in the State of Michigan.~~

L. Requirements for Signing Bids:

1. Bids which are not signed by the individual making them should have attached thereto a power of attorney evidencing authority to sign in the name of the person for whom it is signed.
2. Bids which are signed for a partnership should be signed by one of the partners or by an attorney-in-fact. If signing by an attorney-in-fact, there should be

attached to the bid a power of attorney evidencing authority to sign the bid, executed by the partners.

3. Bids which are signed for a corporation should have the correct corporate name thereon and the signature of the president or other authorized officer of the corporation, manually written below the corporate name following the word, "By_____". Provide a signature authorization certificate.

M. Substitutions:

1. Proposals shall be based on the various brands, makes and standards of materials specified, and unless substitutions are authorized in writing within seven (7) days prior to the receipt of bids, all contracts will be so awarded. Requests shall clearly describe the product for which approval is requested, including all data necessary to demonstrate acceptability. If the product is acceptable, the Architect will approve it in an addendum issued to all prime bidders on record.
2. Proposed substitutions that are unable to be approved seven (7) days prior to receipt of bids may be bid as a voluntary alternate on the bid/tender form. Under this condition, each bidder shall state on the bid/tender form under voluntary alternate(s) the name(s) of proposed substitution(s) to be used if approved and the amount to be added or deducted from the proposal amount if accepted. Submit all data necessary to demonstrate acceptability to the Architect.
3. NO SUBSTITUTIONS WILL BE PERMITTED AFTER THE AWARD OF CONTRACTS.

M. Taxes:

1. Each proposal submitted shall include and the successful bidder shall be required to pay all taxes which are levied by Federal, State, or Municipal Governments upon labor, and for materials entering into the work. The Owner reserves the right to require evidence of payment of such taxes prior to final payment.
2. In compliance with the regulations of the Michigan Sales Tax Commission, sales and use tax is to be included in the proposals.

N. Withdrawal or Revision to Bid:

1. Bid may be withdrawn or revised prior to scheduled time for opening, under following terms:
 - a. Bidders may, without prejudice to themselves, withdraw a bid after it has been deposited, provided request for such withdrawal is received in writing, before time set for opening. Telephonic communications are not acceptable. After opening, no Bid may be withdrawn for the period indicated.

- b. Bidder may modify his bid by written confirmation prior to scheduled time of bid opening. Bidders must have time & date noted to be valid.

O. Time for Completion:

1. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion of each phase of the project are ESSENTIAL CONDITIONS of this contract.
2. All trades of work as specified in the contract documents shall be completed within the time frames indicated for each phase with only such minor replacements, corrections or adjustment items that do not interfere with the complete operation and utilization of all other parts of the contracted work. The project as completed must be approvable for occupancy by Governing Agencies.
3. Completion is as follows:

Substantially Complete by May 15, 2026.

4. It shall be the General Contractor's responsibility to immediately identify and order long lead items that may jeopardize the substantial completion and final occupancy dates as specified.
5. Contractor shall be expected to fully man the project on all working days. The only exceptions that will be accepted shall be weather, labor strikes, or unavailability of materials.

P. Irregular Bids

1. Bids are considered irregular and may be rejected for the following reasons unless otherwise provided by law:
 - a. If form furnished is not used or is altered.
 - b. ~~If bid is submitted without proper bid security (5% bid bond).~~
 - c. If there are unauthorized additions, conditional bids, or irregularities of any kind which may tend to make bid incomplete, indefinite, or ambiguous as to its meaning.
 - d. If bidder adds any provisions reserving right to accept or reject any award, or to into contact pursuant to an award.
 - e. If unit or lump sum prices contained in bid schedule are obviously unbalanced either in excess of, or below, reasonable cost analysis values.
 - f. If bidder fails to insert alternate and unit prices for every item indicated.
 - g. If bidder fails to complete bid in any other particulars where information is requested so bid can not be properly evaluated.
2. Owner reserves right to reject any or all bids and to waive irregularities or informalities as may be deemed in Owner's interest.

Q. Interpretations

1. If bidder for proposed work is in doubt as to the true meaning of any part of the contract documents, submit written request for interpretation (RFI). Bidder submitting request is responsible for its prompt and actual delivery. Interpretations will not be made orally. The architect is not responsible for any other explanations or interpretations which anyone presumes to make.
2. Written request for interpretation shall be made to William A. Kibbe & Associates, Inc., 1475 S. Washington Ave., Saginaw, Michigan 48601, Jay C. Wheeler, PE, jwheeler@kibbe.com. Request must be received AT LEAST 3 DAYS PRIOR to date fixed for opening of bids. All interpretations or supplemental instructions will be in form of written addenda e-mailed or mailed prior to date fixed for opening of bids. Copy of such addenda will be e-mailed or mailed to each individual or entity issued contract documents. Failure to receive such addenda does not relieve bidder from any obligation under his bid as submitted. All addenda are part of the contract documents.
3. Bidder desiring approval of material or equipment not specified must comply with this Section for Substitutions prior to receipt of bids.

R. Method of Award

1. Upon receiving notice of acceptance of a bid, contractor will enter into a contract with Owner or its agent within two (2) weeks.

S. Contractor Qualifications

1. All contractors shall be licensed contractors, possessing good labor relations, capable of performing quality workmanship and working in harmony with other contractors on the job. All work shall be coordinated with the general project work. In the event contractor willfully violates the requirements of this paragraph, Owner shall have the right to order contractor to remove itself, its equipment, and its employees from the job.
2. Bidder to whom award is contemplated may be required to furnish the following information:
 - a. Financial statement.
 - b. Performance record, including past & present projects, amount of contracts, present completion, owner, architect.
 - c. List of references and similar projects.
 - d. List of company, key personnel with their background and experience.

END OF SECTION 001000

SECTION 003000 – BID FORM

BID FORM - CONSTRUCTION TRADES
SAGINAW COMMUNITY SCHOOLS
PRACTICE FIELD REVISIONS

PROJECT: Saginaw Township Community Schools
White Pine Middle School
Practice Field Revisions
WAK Project No. 24-0088-0016

TO: Saginaw Township Community Schools

ARCHITECT/
ENGINEER: William A. Kibbe & Associates, Inc.
1475 S. Washington Avenue
Bay City, MI 48708

BASE PROPOSAL: "G" - General Trades

The Undersigned, having visited the sites and familiarized themselves with the local conditions affecting the cost of the work and the contract documents, including plans, project manual, and technical specifications, Invitation to Bid, Instructions to Bidders, General Conditions, Supplementary Conditions, and any addenda issued thereto, hereby proposes to perform and to provide and furnish all the labor, materials, tools, expendable equipment, utility and transportation services, etc., necessary to perform and complete in a workmanlike manner all work required under base bid for the aforementioned project, all in strict accordance with the Contract Documents, as prepared by William A. Kibbe & Associates, Inc., Architects/Engineers.

In consideration of all the above requirements, the undersigned agrees to accept in payment the sum of:

PROPOSAL "G" – GENERAL TRADES (COMBINED BASE BID):

_____. (\$_____).

Said sum to be subject to all of the terms of the contract and to include all taxes of whatever character or description and all money allowances called for in the specifications applicable thereto.

BASE QUOTE BREAKDOWN:

For quote analysis, the total lump sum quote must be subdivided as outlined below:

General Conditions \$_____

Earthwork \$_____

Restoration and seeding \$_____

Goal Post Relocation \$ _____

Irrigation Sprinkler Head Adjustments \$ _____

Other (Specify) \$ _____

TOTAL BASE BID \$ _____

**(MUST BE EQUAL TO TOTAL LUMP SUM
AMOUNT ON PREVIOUS PAGE)**

Exceptions to the specifications: _____

If none, please indicate ☐ No exceptions taken to the Project Specifications.

ADDENDA: Addenda issued during bidding period covering clarifications, additions, deletions or changes are acknowledged and are included in the proposal as follows:

Addenda Number: _____ Dated _____

Addenda Number: _____ Dated _____

Addenda Number: _____ Dated _____

VOLUNTARY ALTERNATES:

The following voluntary alternates are offered for substituting materials and/or equipment. (Attach specification).

1. _____ ADD/DEDUCT \$ _____

2. _____ ADD/DEDUCT \$ _____

3. _____ ADD/DEDUCT \$ _____

CHANGES IN THE WORK: For authorized changes in the work, involving additions to or deletions from the work, the Undersigned agrees to perform or delete, or to cause to be performed or deleted by the subcontractors, such authorized work at net cost to him plus the following percentages to be added to the cost or credited to the Owner, which percentages shall include all the contractor's cost for on-site superintendent, supervision, overhead and profit.

Work performed by own forces: 15%

Work under subcontract: 10%

COMPLETION TIME: The Undersigned agrees to commence work operations immediately upon formal notice of award of contract and to substantially complete the whole of the work on or before the targeted substantial completion date as stipulated in Section 008000 of the Supplementary Conditions, Article 8.1.5 and Section 001000 Instructions to Bidders.

NEGOTIATION: The Undersigned agrees that, should the overall cost exceed the funds available, they will be willing to negotiate with the Owner and Architect/Engineer for the purpose of making further reductions in the contract work, and shall agree to give full credit for all such reductions in the work requested by the Owner, including full value of labor, materials and subcontracted work and reasonable proportionate reductions in overhead and profit, thereby arriving at an agreed upon contract price. Contractor will endeavor to determine the most cost effective method of accomplishing the Owner's objective and report same to Owner and Architect/Engineer.

WITHDRAWAL/PROPOSAL GUARANTY: The Undersigned agrees in submitting this proposal (bid), that the quotation stated will not be withdrawn for a period of sixty (60) consecutive calendar days from bid due date. Further, accompanying this proposal is a proposal guaranty, as required, consisting of:

(State Nature of Guarantee & Amount)

CONTRACT EXECUTION: The undersigned agrees to execute a contract for work covered by this proposal provided that notification of its acceptance is within sixty (60) calendar days after the opening of the proposal (bid).

The Undersigned hereby declares that he/she has the legal status checked below:

() Individual

() Partnership having the following partners:

() Corporation incorporated under the state laws of

This proposal is submitted in the name of and notice of acceptance should be mailed, telegraphed, or delivered to:

FIRM NAME _____

BY _____ TITLE _____
(Signature)

DATE _____

TELEPHONE _____

IN PRESENCE OF:

_____ TITLE _____

END OF SECTION 003000

INSTRUCTIONS: This form is supplied in DUPLICATE. Submit one copy and retain one copy for file.

SECTION 005000 - AGREEMENT FORM

1.1 DOCUMENTS:

The "Standard Form of Agreement Between Owner and Contractor", A.I.A. Document A101, 2017 Edition, where the basis of payment is a stipulated sum will be the form of agreement utilized for this project.

1.2 RELATED INFORMATION:

Attention is directed to the following divisions of the specifications for additional information relative to the agreement form.

003000	Bid Form - Under "Time of Completion"
007000	General Conditions
008000	Supplementary Conditions

Contractors shall be held responsible for having familiarized themselves with this document and all other documents affecting their contracts in this specification.

This document is on file at the Architect's office or can be obtained from:

Michigan Society of Architects
553 East Jefferson
Detroit, Michigan 48226

END OF SECTION 005000

SECTION 007000 - GENERAL CONDITIONS

1.1 DOCUMENTS:

"The General Conditions of the Contract for Construction", A.I.A. Document A-201, 2017 Edition, forms a part of these specifications and shall have the same effect as if bound herein.

This document is modified as described in Modifications of the General Conditions.

Contractors shall be held responsible for having familiarized themselves with this document and all other documents affecting their contracts in this specification.

This document is on file at the Architect's office or can be obtained from:

Michigan Society of Architects
553 East Jefferson
Detroit, Michigan 48226

END OF SECTION 007000

SECTION 008000 - SUPPLEMENTARY CONDITIONS

The following Supplementary Conditions modify, change, delete from or add to the "General Conditions of the Contract for Construction", A.I.A. Document A-201, 2017 Edition, where any article of the General Conditions is modified or any paragraph, subparagraph or clause thereof is modified or deleted by these Supplementary Conditions. The unaltered provisions of the article, paragraph, subparagraph, or clause shall remain in effect.

ARTICLE 1 - CONTRACT DOCUMENTS

Modify Article 1.1.3 as follows:

1.1.3 The Work

The work comprises all required demolition and removal work, and complete new construction and renovation as required by the contract documents, including all labor necessary to produce such construction, and all materials, equipment and incidentals incorporated or to be incorporated in such construction to produce the intended results.

Modify Article 1.2.3 as follows:

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith, and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. Where reference is made to specifications of manufacturers, trade associations or the like, such is understood to be made a part of this specification to have the same effect as if fully reproduced herein. Approval or equal, acceptable, and words of similar definition are understood to mean, in the judgment of the Architect".

Add Article 1.2.4 as follows:

1.2.4 Computed dimensions take precedence over scaled dimensions, large scale details over smaller. Should there be conflict(s) between or within drawings and/or specifications, that which requires the highest degree of performance (quality, quantity, strength, finish, completion, complexity, sophistication, etc.), will be required and shall be provided at no increase in contract amount. All such conflicts shall be brought to the attention of the Architect/Engineer for interpretation of the intent of the drawings and/or specifications.

ARTICLE 2 - OWNER

Add Article 2.4.2 as follows:

2.4.2 As stated in the contract documents, certain equipment may be pre-purchased by the Owner, the cost of which is not to be included in the contract.

Add Article 2.4.3 as follows:

2.4.3 The Owner and their representative shall at all times have access to the work wherever it is in preparation of progress and the contractor shall provide proper facilities for such access and for review of construction.

ARTICLE 3 - CONTRACTOR

Add Article 3.1.4 as follows:

3.1.4 Term "GENERAL CONTRACTOR" or "PRIME CONTRACTOR" means person, firm or corporation who performs Architectural Trades Work and who is fully responsible to the Owner for all administration, handling and coordination of Work.

Add Article 3.1.5 as follows:

3.1.5 Term "MECHANICAL CONTRACTOR" means person, firm or corporation who performs the Mechanical Work, as a Subcontractor to the General Contractor.

Add Article 3.1.6 as follows:

3.1.6 Term "PLUMBING CONTRACTOR" means person, firm or corporation who performs the Plumbing Work, as a Subcontractor to the General Contractor.

Add Article 3.1.7 as follows:

3.1.7 Term "ELECTRICAL CONTRACTOR" means person, firm or corporation who performs the Electrical Work, as a Subcontractor to the General Contractor.

Add Article 3.1.8 as follows:

3.1.8 Term "SITE CONTRACTOR" means person, firm or corporation who performs the Site Work (if other than General Contractor) as a Subcontractor to the General Contractor.

Add Article 3.3.4 as follows:

3.3.4 All work shall be furnished and installed in strict accordance with Federal, State & Local laws and codes regarding handicapped requirements as well as the requirements of the governing Health Department, State and Local Mechanical Codes, Plumbing Codes, Electrical Codes, Building Code(s), Office of Fire Safety, testing agencies referenced; i.e. U.L., F.M., etc., and/or all other governing codes.

Add Article 3.4.4 as follows:

3.4.4 The Contractor shall be responsible for all work, equipment and materials to accommodate continuous construction. Responsibility shall include but not be limited to: temporary haul roads, temporary drives, fuel, heat, power, water, air, enclosures, blankets, straw, snow removal, etc. The Owner will not accept claims for additional costs due to site or climatic conditions.

Add Article 3.5.3 as follows:

3.5.3 The Contractor warrants that the contract has been completed in full conformity with the intent of the contract documents and has not made any substitutions of materials except as authorized in writing by the Owner and the Architect. The Contractor agrees to return to the site of the work within fourteen (14) working days of receipt of written notice from the Owner or the Architect and will furnish at contractor's expense all necessary labor and material to make proper repairs or corrections made necessary by defective materials or inferior workmanship furnished or performed under contract, including damage to adjacent materials or equipment caused by the defect, all corrective work shall be without cost to the Owner and shall be completed to the satisfaction of the Owner and Architect. Failure to take action by the contractor on warranted work shall result in notification of the bonding company by the Owner or Architect with the intent to have the defective material or inferior workmanship corrected at the contractor's expense. The warranty of work shall commence upon the substantial completion date of the project and remain in full force and effect for one (1) year from the date thereof.

Add Article 3.5.4 as follows:

3.5.4 Defective material or inferior workmanship corrected by the contractor shall be warranty for an additional year from date of acceptance by the Owner or Architect of the warranty work.

Add Article 3.6.1 as follows:

3.6.1 The Contractor submitting a bid shall include and the successful bidder shall be required to pay all taxes which are levied by Federal, State or Municipal governments upon labor, and for materials entering into the work. The Owner reserves the right to require evidence of payment of such taxes prior to final payment. The above includes taxes which are legally enacted at the time bids are received, whether or not yet effective.

Modify Article 3.7.1 as follows:

3.7.1 The Prime Contractor shall obtain and pay for the building permit and for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the contract and which are legally required at the time bids are received, excluding the following trades:

- .1 The Mechanical Trades Contractor shall obtain and pay for all required mechanical permits and inspections.
- .2 The Plumbing Trades Contractor shall obtain and pay for all required plumbing permits and inspections.
- .3 The Electrical Trades Contractor shall obtain and pay for all required electrical permits and inspections.
- .4 The Site Work Contractor shall obtain and pay for all required site work permits and inspections.

Add Article 3.9.4 as follows:

3.9.4 The Contractor shall maintain a competent Project Manager and Superintendent approved by the Architect/Engineer and Owner throughout the period of construction. The Project Manager or Superintendent shall be deemed an agent of the contractor and any orders given him by the Architect/Engineer shall be binding upon the contractor. The Project Manager or Superintendent of the Contractor may not be removed from (or replaced on) the job during the period of construction without approval of the Architect/Engineer and Owner.

Add to Article 3.12.5 as follows:

3.12.5 The Contractor shall mark corrections, notations, etc., and note his approval on each copy of shop drawings before they are submitted to the Architect. Shop drawings which, in the opinion of the Architect have not been fully checked by the Contractor will not be reviewed by the Architect. The shop drawings will be returned for proper checking by the Contractor. No extension of the contract completion date will be allowed because of such action by the Architect.

Add Article 3.13.1 as follows:

3.13.1 The Contractor shall coordinate with the Owner all arrangements necessary to conduct construction operations, with a minimum of interference to the Owner's operations. Clean-up of areas not within the construction limits shall be daily and complete, and any damage to these areas caused by construction operations shall be repaired to original condition immediately.

Add Article 3.13.2 as follows:

3.13.2 The Contractor shall not disrupt any of the existing utility services without prior approval. The Contractor shall obtain permission to do so from the Owner through the Architect. Requests for permission to disrupt any utility shall be submitted well in advance of the need in order to not delay the work. The refusal by the Owner of such a request which is submitted on short notice, will not be accepted as a basis for time extension.

ARTICLE 4 - ARCHITECT

Add Article 4.2.7.1 as follows:

4.2.7.1 The Architect shall make all interpretations concerning the contract documents during bidding and construction phases of the project.

ARTICLE 7 - CHANGES IN THE WORK

Add Article 7.1.4 as follows:

7.1.4 If the Architect or Owner needs or wishes to change the scope or character of the work, a bulletin may be issued by the Architect. The Contractor upon receipt of the bulletin shall within ten (10)

days, submit to the Architect a completely itemized lump sum quotation in two (2) copies, indicating the cost or credit to the Owner resulting from the change in the work.

Add Article 7.1.5 as follows:

7.1.5 Extra compensation will not be authorized for work which, though not specifically detailed or specified, is reasonably inferable to satisfy the design intent and/or obviously necessary to maintain the quality of construction and finish established by the drawings and specifications. The contractor is expected to examine the drawings, specifications and site of the work carefully before submitting a proposal and to obtain from the Architect in writing, any additional information which would affect its bid.

Add Article 7.3.3.1.1 as follows:

7.3.3.1.1 By mutual acceptance of a lump sum properly itemized bulletin quotation indicating; quantities, unit costs, and total costs of materials including applicable sales and use taxes and delivery charges; hours of labor, hourly rates and total labor costs, including direct and indirect payroll taxes and insurance based upon direct cost of labor; copies of detailed subcontractor's quotations; fee as stated in the proposal and the contract, which shall include all costs for on-site superintendence, general supervision, other direct and indirect costs or charges of any nature, overhead and profit; this shall apply to subcontractors as well as the contractor. Charges for direct and indirect taxes on labor, insurance and other payroll loadings, sales and use taxes, premium time (overtime) costs shall be computed separately and shall not be subject to the percentage fee. This shall apply to subcontractors as well as the contractor. Should the change result in both work being added and work being omitted, the applicable fee shall be computed on the net costs of the change even though the change results in different trades being employed.

ARTICLE 8 - TIME

Modify Article 8.1.2 as follows:

8.1.2 The date of commencement of the work shall be the date of the Owner/Contractor Agreement.

Add Article 8.1.5 as follows:

8.1.5 The total project shall be substantially complete and ready for use by the Owner as follows:

Commence
After Notice to Proceed
(Approximately March 20, 2026)
Start Construction approx. March 30, 2026

Substantial Completion
By May 15, 2026

ARTICLE 9 - PAYMENTS AND COMPLETION

Modify Article 9.3.1 as follows:

9.3.1 At least ten (10) days before the date for each progress payment established in the Owner/Contractor Agreement, the Contractor shall submit to the Architect an itemized application for payment utilizing AIA Document G702 & Continuation Sheet G703, "Application and Certificate for Payment"; notarized and supported by such data substantiating the contractor's right to payment as the Owner or the Architect may require, reflecting retainage which shall be ten (10%) percent through substantial completion of the entire project. Upon reaching substantial completion, the Architect shall determine such retainages as may be required to finish incomplete work and unsettled claims. In addition, each Application for Payment shall be accompanied by the following; all in a form and substance satisfactory to the Owner and in compliance with applicable statutes set forth by the State in which the work is being done.

- .1 A current Sworn Statement from the Contractor setting forth all subcontractors and materialmen with whom the Contractor has subcontracted, the amount of each subcontract, the amount requested for any subcontractor or materialman in the application for payment and the amount to be paid to the Contractor from such progress payment, together with a current duly executed waiver of construction, mechanics' and materialmen's liens from the Contractor establishing receipt of payment or satisfaction of the payment requested by the Contractor in the current Application for Payment;
- .2 Commencing with the second (2nd) Application for Payment submitted by the Contractor, duly executed so-called "after the fact" waivers of construction, mechanics' and materialmen's liens from all subcontractors, materialmen and, when appropriate from lower tier subcontractors, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment, plus sworn statements from all subcontractors, materialmen and, where appropriate from lower tier subcontractors, covering all amounts described in previous applications for payment.
- .3 Final waivers of lien must be submitted for all contracts, subcontracts and material for final payments.

Add Article 9.3.1.3 as follows:

9.3.1.3 When the construction contract has been completed to fifty (50%) percent, the Architect and Owner, upon evaluation, may reduce retainage. The amount of reduction shall be determined by the Architect and will be based upon satisfactory performance relative to percentage of completion and quality of the work in place as well as other determining factors. If in the opinion of the Architect and Owner, the Contractor is not performing after reductions have been initiated, the Architect reserves the authority to reinstate the ten (10%) percent retainage.

Add Article 9.10.6 as follows:

9.10.6 Upon completion of the project, or portions thereof, the Contractor shall transfer to the Owner all applicable items accumulated throughout construction. Satisfaction of the following requirements shall be considered a part of payment requests. These include but are not limited to the following items:

- .1 Service manuals, installation instructions, special tools and specialties.

- .2 Spare parts ordered as part of this contract.
- .3 Submittal of the Contractors' one year guarantee.
- .4 Submittal of manufacturer's guarantees, bonds, and letters of coverage extending beyond the time limitations of the Contractor's guarantee.
- .5 Delivery of any salvaged or borrowed materials or equipment to the Owner.
- .6 Record documents of completed facilities. See separate section for specific requirements.
- .7 All keys to all doors, gates and equipment.

Add Article 9.11 as follows:

9.11 Liquidated Damages:

9.11.1 If the Contractor shall neglect, fail, or refuse to complete the work within the timeframes indicated, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the sum of **Five Hundred Dollars (\$500.00)** per day, not as a penalty but as liquidated damages for such breach of contract, for each and every calendar day that the Contractor shall be in default after the time stipulated for completing the work or portions of the work as stipulated in Article 8.1.5 of these Supplementary Conditions.

9.11.2 The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount shall be retained from time to time by Owner from current periodical estimates.

9.11.3 It is further agreed that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

- .1 To any preference, priority or allocation order duly issued by the Government.
- .2 To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, Acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; and
- .3 To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (.1) and (.2) of this article.

9.11.4 Provided further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the contract,

notify the Owner, in writing, of the causes of the delay. The Owner shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

Add Article 10.5 as follows:

10.5 General construction industry safety rules and regulations for the state in which the work is being prosecuted and the U.S. Department of Labor, Safety and Health Regulations for Construction, known as the U.S. Construction Safety Act shall be adhered to by all Contractors and Subcontractors on this project. Certification of this coverage shall be submitted along with that required in Article 11.

ARTICLE 11 - INSURANCE

Add to Article 11.1.1 as follows:

11.1.1 The Contractor shall purchase and maintain such insurance from a company or companies licensed to do business in the state in which the project is located and will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Liability insurance shall include all major divisions of coverage on a comprehensive basis including; premises operations (including X, C, U); independent contractor's protective, products and completed operations, contractual liability; owned, non-owned, and hired motor vehicles and broad form property damage including completed operations.

Modify Article 11.1.2 as follows:

11.1.2 The insurance required by subparagraph 11.1.1 shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater, provide minimum limits as follows:

- a. Worker's Compensation:
 - (1) State-statutory.
 - (2) Applicable federal - statutory.
 - (3) Employer's liability - \$500,000.
 - (4) Benefits required by labor union contracts.
- b. Contractor's liability insurance shall be comprehensive general liability including contractual liability.
 - (1) Bodily Injury:
 - \$1,000,000 Each occurrence.
 - \$2,000,000 Aggregate.
 - (2) Property damage (including completed operations broad form):
 - \$1,000,000 Each occurrence.
 - \$2,000,000 Aggregate.

- (3) Broad form completed operations and product liability insurance shall be maintained until final payment is made and Contractor shall continue to provide evidence of such coverage to Owner on an annual basis during the coverage period. (Name: Bay County Historical Museum as an additional insured).
- (4) Property damage liability insurance shall include coverage for X (Explosion), C (Collapse), and U (Underground).
- (5) Contractual Liability (Hold Harmless Coverage):
 - (a) Bodily Injury: \$1,000,000 Each Occurrence.
 - (b) Property Damage: \$1,000,000 Each Occurrence.
\$2,000,000 Aggregate.
- (6) Personal Injury with Employment Exclusion Deleted:
 - \$1,000,000 Each Person Aggregate.
 - \$2,000,000 General Aggregate.
- c. Comprehensive automotive liability (owned, non-owned, hired):
 - (1) Bodily injury: \$1,000,000 Each person.
\$1,000,000 Each occurrence.
 - (2) Property damage: \$1,000,000 Each occurrence.
- d. An umbrella policy extending all limits to a minimum of an additional \$2,000,000.
- e. This insurance shall not be intended to cover any responsibility for damages as included herein under heading of "Damages", Articles 7.4 and 8.3.

Add Article 11.1.5 as follows:

11.1.5 The Contractor shall furnish to the Owner and the Architect, insurance policies protecting both the Owner and the Architect from liability for damages as provided for under the Contractor's liability insurance. Liability limits shall be the same as for the Contractor's liability insurance.

Add to Article 11.2.4 as follows:

11.2.4 The Owner shall secure and maintain property insurance, all risk, completed value, in the amount equal to the contract sum for the work.

Modify Article 11.3.1 as follows:

11.3.1 The Owner and Contractor waive all rights against: (1) each other and the subcontractors, sub-subcontractors, agents, and employees each of the other, and (2) the Architect, his consultants, and separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this policy or

any other property insurance applicable to the work, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The foregoing waiver afforded the Architect, his agents and employees shall not extend to the liability imposed. The Owner or the Contractor, as appropriate, shall require of the Architect, separate contractors, subcontractors, sub-subcontractors, by appropriate agreements written where legally required for validity, similar waivers each in favor of all parties enumerated in this agreement.

Add Article 11.4.1 as follows:

11.4.1 Performance bond and labor and material payment bond shall be from a security company duly approved by the U.S. Department of Treasury and listed in the U.S.T. Circular No. 570, latest edition. Surety company shall be rated A.M. Best as 'B' or better and licensed to operate in the State of Michigan. The total cost of the bonds or any additional costs as may be required by the General Contractor's Surety Company shall be borne by the General Contractor and included in the General Contractor's bid.

Add Article 15 as follows:

ARTICLE 16 - EQUAL OPPORTUNITY

16.1 The Contractor shall maintain policies of employment as follows:

16.1.1 The Contractor and all subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin or age. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin or age. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

15.1.2 The Contractor and all subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age."

END OF SECTION 008000

SECTION 010100 - SUMMARY OF WORK

1.1 GENERAL SUMMARY

- A. Comply with procedures described in this section relative to construction of the project, and Owner's use of the site.
- B. Related Documents:
 - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.

1.2 DESCRIPTIVE SUMMARY OF THE WORK

- A. Goal post relocation.
- B. Install topsoil and grading per plan.
- C. Adjust irrigation sprinkler heads.
- D. Restoration and seeding.

1.3 OWNER OCCUPANCY (NOT USED)

1.4 PRE-ORDERED PRODUCTS (NOT USED)

END OF SECTION 010100

SECTION 010190 - CONTRACT CONSIDERATIONS

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. Attention is directed to Division 0, Bidding and Contract Requirements to Division 1, General Requirements, which are hereby made a part of this specification.

1.1 CASH ALLOWANCES (see Section 012100)

- A. Construction Staking: \$1,500.00
- B. Construction Testing: \$1,500.00

1.2 CONTINGENCY ALLOWANCE (NOT USED).

1.3 SPECIAL INSPECTIONS AND TESTING ALLOWANCES. (By Owner)

1.4 SCHEDULE OF VALUES

- A. Within 24 hours after opening of the proposals, the successful bidder shall submit in duplicate to the Architect for his inspection a complete bid breakdown. The schedule of values shall be on AIA Form G703. (Contractor's standard form or electronic media printout will be considered).
- B. In addition, within 48 hours after the opening of bids, the successful bidder shall submit to the Architect, in duplicate, for his inspection and approval, a list of all subcontractors proposed to be employed on this project.

1.5 APPLICATIONS FOR PAYMENT

- A. Submit three (3) copies of each application on AIA Form G702.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

1.6 CHANGE PROCEDURES

- A. Change Order Forms: Change orders will be processed on forms provided by the Architect.

1.7 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option.
- B. Coordinate related Work and modify surrounding Work as required.
- C. Schedule of Alternates: (See Bid Form, Section 003000).

END OF SECTION 010190

SECTION 010270 - APPLICATIONS FOR PAYMENT

1.1 GENERAL SUMMARY

- A. Comply with procedures described in this Section when applying for progress payment and final payment under the Contract.
- B. Related Work:
 - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.
 - 2. The Contract Sum and the schedule for payments are described in the Form of Agreement.
 - 3. Payments upon Substantial Completion and Completion of the Work are described in the General Conditions and in Section 001700 of these specifications.
 - 4. The Architect's approval of applications for progress payment and final payment may be contingent upon the Architect's approval of status of Project Record Documents as described in Section 001700 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Architect's approval of the schedule of values required to be submitted under Paragraph 9.2 of the General Conditions, and further described in Section 000100 of these Specifications.
- B. During progress of the Work, modify the schedule of values as approved by the Architect to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract.
- C. Base requests for payment on the approved schedule of values.

1.3 PROCEDURES

- A. Informal submittal: Unless otherwise directed by the Architect:
 - 1. Make an informal submittal of request for payment by filling in, with erasable pencil or on word processor, pertinent portions of AIA Document G702, "Application and Certificate for Payment," plus continuation sheet or sheets.
 - 2. Make this preliminary submittal to the Architect at least ten days prior to the end of the month or at the last regular job meeting of the month.
 - 3. Revise the informal submittal of request for payment as agreed at the job meeting, initialing all copies.
 - 4. Submit a request/application for payment each calendar month.
 - 5. Waivers of Lien: Do not submit copies of partial or full waivers of lien with informal submittal.

- B. Formal submittal: Unless otherwise directed by the Architect:
1. Make formal submittal of request for payment by filling in the agreed data, by typewriter or neat lettering in ink, on AIA Document G702, "Application and Certificate for Payment," plus continuation sheet or sheets.
 2. Sign and notarize the Application and Certificate for Payment.
 3. Submit the original and four copies of the Application and Certificate for Payment, including copies of the continuation sheet or sheets and waivers to the Architect.
 4. Waivers of Lien: Submit partial waivers on each item for amount requested, prior to deduction for retainage, on each item. When an application shows completion of an item, submit final or full waivers.
 5. Submit sworn statement with each request for payment.
 6. The Architect will compare the formal submittal with the approved informal submittal and, when approved, will sign the Application and Certificate for Payment, will make required copies, and will distribute:
 - a. One copy to Contractor;
 - b. Two copies to Owner;
 - c. One copy to Architect's file.
 7. The Owner, upon approval, will disburse directly to the Contractor.

END OF SECTION 010270

SECTION 010280 - CHANGE ORDER PROCEDURE

1.1 GENERAL SUMMARY

- A. Make such changes in the Work, in the Contract Sum, in the Contract Time for Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Architect and issued after execution of the Contract, in accordance with the provisions of this Section.
- B. Related Work:
 - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.
 - 2. Changes in the Work are described further in the General Conditions and Supplemental Conditions.
 - 3. Architect's supplemental instructions:
 - a. From time to time during progress of the Work, the Architect may issue supplemental instructions which interpret the Contract Documents or order minor changes in the Work without change in Contract Sum or Contract Time.
 - b. Should the Contractor consider that a change in Contract Sum or Contract Time is required, he shall submit an itemized proposal to the Architect immediately and before proceeding with the Work. If the proposal is found to be satisfactory and in proper order, the supplemental instructions in that event will be superseded by a Change Order.
 - 4. Proposal requests:
 - a. From time to time during progress of the Work, the Architect may issue a proposal request (bulletin) for an itemized quotation for changes in the Contract Sum and/or Contract Time incidental to proposed modifications to the Contract Documents.
 - b. This will not be a Change Order, and will not be a direction to proceed with the changes described therein.

1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Maintain a "Register of proposal requests, supplemental instructions, and Change Orders" at the job site, accurately reflecting current status of all pertinent data.
- B. Make the Register available to the Architect for review at his request.

1.4 PROCESSING PROPOSAL REQUESTS

- A. Make written reply to the Architect in response to each proposal request.
 - 1. State proposed change in the Contract Sum, if any.
 - 2. State proposed change in the Contract Time of Completion, if any.
 - 3. Clearly describe other changes in the Work, if any, required by the proposed change or desirable therewith.
 - 4. Include full backup data such as subcontractor's letter of proposal or similar information.
 - 5. Submit this response in single copy.
- B. When cost or credit for the change has been agreed upon by the Owner and the Contractor, or the Owner has directed that cost or credit be determined in accordance with provisions of the General Conditions, the Architect will issue a Change Order to the Contractor.

1.5 PROCESSING CHANGE ORDERS

- A. Change Orders will be numbered in sequence and dated.
 - 1. The Change Order will describe the change(s), will refer to the proposal requests or supplemental instructions involved, and will be signed by the Owner and the Architect.
 - 2. The Architect will issue three copies of each Change Order to the Owner.
 - a. The Owner will promptly sign all three copies and return two copies to the Architect.
 - b. The Architect will retain one signed copy in his file, will forward one signed copy to the Contractor.

END OF SECTION 010280

SECTION 010390 - COORDINATION AND MEETINGS

1.1 GENERAL

- A. Attention is directed to Division 0, Bidding and Contract Requirements, and to Division 1, General Requirements, which are hereby made a part of this specification.

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.
- B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.
- C. Coordinate space requirements and installation of special equipment, and mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.
- D. In finished areas, conceal pipes, ducts, and wiring within the construction.

1.3 CUTTING AND PATCHING

- A. Employ a skilled and experienced mechanic to perform cutting and patching new or existing Work; restore Work with new Products.
- B. Submit written request in advance of cutting or altering structural or building enclosure elements.
- C. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- D. Refinish surfaces to match adjacent finishes.

1.4 CONFERENCES

- A. General Contractor will schedule a pre-construction conference after Notice of Award has been sent to the General Contractor.

1.5 PROGRESS MEETINGS

- A. The General Contractor will schedule and administer meetings throughout progress of the Work at maximum monthly intervals.

END OF SECTION 010390

SECTION 013400 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1.1 GENERAL SUMMARY

- A. Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements, all as described in this Section. Coordinate all submittals with the Progress Schedule and actual work progress.
- B. Related Work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Individual requirements for submittals also may be described in pertinent Sections of these Specifications.
- C. Work not included:
 - 1. Un-required submittals will not be reviewed by the Architect.

1.2 SUBMITTALS

- A. Make submittals of Shop Drawings, samples, substitution requests, and other items in accordance with the provisions of this Section. Provide additional copies as may be required for Governing Authorities.

1.3 QUALITY ASSURANCE

- A. Coordination of submittals:
 - 1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
 - 2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
 - 3. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

2.0 PRODUCTS

2.1 SHOP DRAWINGS

- A. Scale and measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.
- B. Types of prints required:
 - 1. Submit (5 total sets) of Shop Drawings in the form of original documents or (1) electronic submittal in PDF format.
- C. Review comments of the Architect will be shown when it is returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

2.2 MANUFACTURERS' LITERATURE

- A. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, **clearly show which portions of the contents are being submitted for review.**

- B. Submit the number of copies which are required to be returned, plus two copies which will be retained by the Architect.
- C. Where the product data is required for maintenance manuals, submit two additional copies which will be returned. Maintain one additional copy at the project site for reference purposes.
 - 1. Do not proceed with the installation of manufactured products until a copy of related product data is in the installer's possession at the project site.

2.3 SAMPLES

- A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below. Colored scans are not acceptable.
- B. Number of Samples required:
 - 1. Submit three sets of samples; one set will be returned. Provide 3 or more samples in each set where variations in color, pattern or texture are observable; show average condition and extreme range of variations. Submit full documentation with each set. Sample submittals are for Architect/Engineer's review of color, texture, pattern and "kind"; maintain returned samples at project site for purposes of quality control comparisons.
 - 2. By pre-arrangement in specific cases, a single sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Architect.

2.4 MISCELLANEOUS SUBMITTALS

- A. Provide copies of miscellaneous submittals as follows:
 - 1. Warranties: Submit 2 executed copies, plus additional copies as required for maintenance manual.
 - 2. Maintenance Manuals: Submit 2 bound copies.
 - 3. Record Drawings: Submit original maintained marked-up prints (2 sets).

3.0 EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

- A. Consecutively number all submittals.
 - 1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
 - 2. On re-submittals, cite the original submittal number for reference.
- B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.
- C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
- D. Submittal Log:
 - 1. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times.
 - 2. Make the submittal log available to the Architect for the Architect's review upon request.

3.2 GROUPING OF SUBMITTALS

- A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
 - 1. Partial submittals may be rejected as not complying with the provisions of the Contract.
 - 2. The Contractor may be held liable for delays so occasioned.
 - 3. Items requiring color selection; i.e. interior finishes shall be submitted as a group to facilitate overall color coordinated selection. Color selections will not be made until the majority of samples are received.

3.3 TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery.
- B. In scheduling, allow at least ten working days for review by the Architect following the Architect's receipt of the submittal.

3.4 ARCHITECT/ENGINEER'S ACTIONS

- A. Review of the shop drawings by the Architect/Engineer is to determine general conformance with the design concept of the project and with the information given in the contract documents. Neither the receipt nor the review of shop drawings by the Architect/Engineer shall relieve the contractor of his responsibility for performance of the work in accordance with the requirements of the contract documents. Contractor shall be responsible for dimensions to be conformed and correlated at the site; for information that pertains to fabrication process or to the means, method, techniques, sequences and procedures of construction, and for coordination of the work of all trades.
- B. Contractor Submittals, Shop Drawings or Product Data from time to time are submitted with errors. If overlooked by the Architect/Engineer review process, it shall not grant the contractor leave to proceed in error, and regardless of any information contained in the Shop Drawing review, the contractor shall be required to meet the requirements of the drawings and specifications. Shop drawings and/or product data review shall not waive or supersede in any way the requirements of the contract documents (drawings and specifications).

3.5 REQUIRED SUBMITTALS

- A. Submittals required by the Contract Documents: The General Contractor shall be responsible for review of the following divisions of the specifications and submission of requested shop drawings: Division 1,2,3,4,5,6,7,8,9,10,11,12,13, & 14. The Mechanical & Plumbing Subcontractor shall be responsible for review of the following divisions of specifications and submission of requested shop drawings: (Division 1 & 15). The Electrical Subcontractor shall be responsible for review of the following divisions of the specifications and submission of requested shop drawings: (Division 1 & 16). All shop drawings shall be submitted as detailed under Division 1, Section 013400.

END OF SECTION 013400

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements, consisting of multiple products, assemblies, and subassemblies.
 - E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
 - F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
 - G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
 - H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
 - I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
 - J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.
- 1.3 DELEGATED-DESIGN SERVICES
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
- 1.4 CONFLICTING REQUIREMENTS
- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
 - B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as

appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

- A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.

11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and re-inspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Statement on condition of substrates and their acceptability for installation of product.
 2. Statement that products at Project site comply with requirements.
 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 5. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Statement that equipment complies with requirements.
 2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 3. Other required items indicated in individual Specification Sections.

1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those

performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - d. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
1. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 6. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency/special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections on the drawings, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.
 - 1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.01 GENERAL SUMMARY

- A. This Section describes construction facilities and temporary controls required for the Work.
- B. The General Contractor provides all temporary utilities, controls and services as described in this section. No extra compensation will be provided should temporary utilities, controls and services provided prove to be inadequate or incompatible with the needs of the Contractor, Subcontractors, and Sub-subcontractors. The Contractor, Subcontractors, and Sub-subcontractors shall make other arrangements as needed.
- C. Related Work:
 - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.
 - 2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work is not part of this Section.
 - 3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.02 REQUIREMENTS **(NOT REQUIRED)**

- A. The General Contractor shall provide construction facilities and temporary controls when first needed, ready for use, to avoid delay in the work. Maintain, expand and modify as needed. Do not remove until no longer needed, or replace by authorized use of permanent facilities.
- B. Construction facilities and temporary controls shall consist of, but not be limited to: **(NOT REQUIRED)**
 - 1. Temporary utilities such as heat, water, electricity, and telephone;
 - 2. Field office for the General Contractor's personnel;
 - 3. Sanitary facilities;
 - 4. Enclosures such as tarpaulins, temporary insulated enclosures, barricades, canopies, and temporary partitions.
 - 5. Temporary fencing of the construction site;
 - 6. Project sign.
 - 7. Subcontractors shall provide their own field office if desirable, located per the General Contractor. All utilities and telephone to be by Subcontractor.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Maintain temporary facilities (NOT REQUIRED) and controls in proper and safe condition throughout progress of the Work.

1.04 REGULATIONS, STANDARDS AND INSTALLATION

- A. Regulations: Comply with requirements of local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities.
- B. Standards: Comply with the requirements of NFPA Code 241, "Building Construction and Demolition Operations", the ANSI-A10 Series Standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".
- C. Installation: Use qualified tradesmen for installation. Locate temporary services and facilities where they will serve the project adequately and result in minimum interference with the work.

PART 2. PRODUCTS

2.01 UTILITIES

A. Temporary Water:

- 1. The General Contractor may utilize existing building water supply during construction. Upon completion, restore all facilities to new condition.
- 2. The Owner will allow the General Contractor to connect to and utilize the existing building water service when available. Water shall be supplied without cost unless in the opinion of the Owner the privilege is being abused. Unnecessary use of water, improper or inefficient utilization of water, etc. will lead to cancellation of this arrangement, with the General Contractor being required to provide alternative sources at their own expense. Where an Owner provided water service is not available, the Contractor shall be responsible for providing and paying for all costs associated with providing temporary water.
- 3. The General Contractor must make other arrangements should the service prove to be inadequate or disruptive to the Owner. All costs to be included in base proposal.
- 4. Drinking water and supplies to be provided by each individual contractor.

B. Temporary Ventilation:

- 1. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors and gases.

C. Temporary Electricity:

- 1. Provide for temporary power and circuits of proper sizes, characteristics, and ratings as required to expedite the work. Install wiring overhead, and risers vertically where least exposed to damage.
- 2. Provide as a minimum temporary electricity infrastructure as required to construct, add to, or remodel the facility.
- 3. Provide warning signs at power outlets that are other than 110/120 volt. Provide outlets of proper NEMA configuration to prevent insertion of 110/120-volt plugs into higher voltage outlets.
- 4. Upon completion of the work, remove all temporary electrical facilities.
- 5. Usage Charges: Provide the following temporary power and usage charges as applicable.
 - a. Additions & Renovations: It shall be the General Contractor's responsibility to coordinate the provision of all necessary Temporary Electricity and Temporary

Lighting. The Owner will allow the General Contractor to connect to the existing building power supply at the characteristics existing provided that there is adequate capacity to provide temporary electricity infrastructure. If adequate capacity is not available, the General Contractor shall proceed under 5b. as for a new building. Verify capacities of existing services at bid time. The Contractor shall provide any necessary transformers or other equipment necessary to change the power to the characteristics required for the work being provided. Power will be supplied without cost to the Contractor, unless in the opinion of the Owner or the Architect the privilege is being abused. Overloading of circuits, unnecessary use of power, improper or inefficient utilization of electrical equipment, etc., will lead to cancellation of this arrangement, with the Contractor being required to provide alternative sources at Contractor's expense, including usage charges until the building is turned over to the Owner for Owner's occupancy. Building ready for Owner's occupancy shall be as determined by the Architect/ Engineer.

- b. New Building Construction: Where the General Contractor is constructing in an area where it is not possible to connect to an Owner provided power source, the Contractor shall provide and pay for all temporary power infrastructure to include approved service connections, backboard, configuration, and meter installation from the nearest utility source. Usage costs shall be paid by the General Contractor.
- c. Temporary electrical service shall not be used to power equipment with large power consumption such as welders, electric space heaters, etc., or for heat in portable construction offices.

D. Lighting: (NOT REQUIRED)

- 1. Provide general service lamps of wattage required for adequate illumination. Provide additional lighting as may be required to drywall finishers and painters. Protect lamps with guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior type fixtures where exposed to weather or moisture.
- 2. Provide temporary lighting as required to construct, add to, or remodel the facility.
- 3. Usage Charges: Provide the following temporary lighting and usage charges as applicable:
 - a. Additions & Renovations: The Owner will allow the General Contractor to utilize existing building power at the existing characteristics for temporary lighting provided that there is adequate capacity to provide temporary lighting infrastructure. If adequate capacity is not available, the Contractor shall proceed under 5b, as for a new building. Verify capacity of existing service at bid time. The Contractor shall provide any necessary transformers or other equipment necessary to change the power to the characteristics required for the work being provided. Power for temporary lighting will be provided by the Owner without cost to the Contractor unless in the opinion of the Owner or the Architect, the privilege is being abused. Overloading of circuits, unnecessary use of power, improper or inefficient utilization of electrical equipment, etc., will lead to cancellation of this arrangement with the Contractor being required to provide alternative sources at Contractor's expense, including usage charges until the building is turned over to the Owner for Owner's occupancy. Building ready for Owner's occupancy shall be as determined by the Architect/Engineer.
 - b. New Building Construction: Where the General Contractor is constructing in an area

where it is not possible to connect to an Owner provided temporary lighting power source. The General Contractor shall provide and pay for all infrastructure necessary for temporary lighting power sources including approved service connections and meter installation from the nearest utility source. Usage costs to be paid by the General Contractor.

E. Compressed Air:

1. The General Contractor shall provide compressed air used for work under contract, including temporary lines, connections. Remove temporary lines, etc., at completion of work.

F. Temporary Hoists & Ladders:

1. The General Contractor shall construct, maintain, such temporary hoists as required to properly expedite construction. Temporary hoists shall be constructed in accordance with requirements of "Manual of Accident Prevention in Construction" as published by the Associated General Contractors of America.

G. Temporary Heating: (NOT REQUIRED)

1. Provide for "cold weather protection" and "temporary heating" where needed for performance of work, for curing or drying of recently installed work or for protection of work in place from adverse effects of low temperature or high humidity. Provide temporary heating as required to facilitate construction.
2. Temporary heating requirements during the course of construction shall be divided into two categories as follows:
 - a. Cold weather protection.
 - b. Temporary heating.Prior to building enclosure, the contractor, subcontractor, or sub-subcontractors shall provide the fuel, heating apparatus, and protection necessary at no cost to Owner to complete their work during construction. This shall be classified as "cold weather protection". After building enclosure, heating required to continue interior construction shall be classified as "temporary heating".
3. Maintain a minimum temperature of 45°F. (7°C) in temporary or permanently enclosed portions of the building including footings and foundation construction, and areas where finished work has been installed.
4. All heating required during the construction period, after the building is considered enclosed by the Architect/Engineer, and up until the Architect/Engineer has determined that the building is ready for Owner occupancy shall be classified as "Temporary Heat".
5. The building will be considered to be enclosed when in the opinion of the Architect/Engineer:
 - a. Exterior walls are completely erected.
 - b. Roof deck is complete and roof is watertight.
 - c. Openings in exterior walls are covered to provide reasonable heat retention.
 - d. The building is ready for interior finish operations.
6. Usage Charges: Provide the following temporary heating and usage charges as applicable:
 - a. Additions & New Building Construction: It shall be the General Contractor's responsibility to coordinate the provision of all necessary temporary heat, including

attendant if necessary, approved heating appliance infrastructure necessary and usage charges for fuel. This requirement shall be enforced until the new building or addition is permanently enclosed and the permanent heating system is sufficiently complete to be utilized for temporary heating. If temporary heat is required after installation of the permanent heating system, the Contractor may use the permanent heating system and provide necessary attendants. The Contractor shall be held responsible for proper care and maintenance of equipment, and shall turn same over to Owner in satisfactory condition, including full warranty provisions, at substantial completion of work. Fuel for operation of permanent heating system for purpose of temporary heat shall be paid by Owner. If in the opinion of the Owner or Architect, this privilege is being abused, unnecessary use of energy, not properly supervising the use of temporary heating units, etc., will lead to cancellation of this agreement, with the Contractor being required to provide alternate sources at his own expense, including usage charges until the building is turned over to the Owner for Owner's occupancy. Building ready for Owner's occupancy shall be as determined by the Architect/Engineer.

- b. Renovation: The General Contractor may utilize the Owner's existing heat plant, extend and supplement with temporary units as required to maintain specified conditions for construction/renovation operations. The Contractor shall be held responsible for proper care and maintenance of permanent heating equipment utilized for temporary heat, and shall turn over same to Owner in satisfactory condition, including full warranty provisions of any new equipment, at substantial completion of work. Fuel for operation shall be paid by Owner. If in the opinion of the Owner or Architect this privilege is being abused, unnecessary use of energy not properly utilizing heat plant, etc., will lead to cancellation of this arrangement, with the Contractor being required to equitably compensate the Owner for his share of the heating costs.

- 7. When utilizing permanent heating apparatus for temporary heat, provide and pay for all maintenance including regular replacement of filters and worn or consumed parts such as valves, valve cocks, traps, or other accessories. Warranty provisions of all permanent heating system equipment utilized for temporary heating shall commence upon the date of substantial completion.

H. Telephone:

- 1. The General Contractor and Subcontractors shall make necessary arrangements and pay costs for installation and operation of telephone service to the site.
- 2. Make the telephone available to the Architect for use in connection with the Work.
- 3. At telephone location, post a list of operational and emergency telephone numbers.

2.02 FIELD OFFICES, SHEDS AND ACCESS

A. General Contractor and Subcontractor Facilities:

- 1. Provide a weathertight office, with lighting, electrical outlets, heating and cooling equipment, equipped with sturdy furniture and drawing display table. (NOT REQUIRED)
- 2. Provide space for meeting with Architect/Engineer with table and chairs. (NOT REQUIRED)
- 3. Contractor shall provide and/or construct temporary sheds as required for the use of workmen and storage of materials. Shed shall be of approved construction. At completion

of construction, all parts shall be removed and premises cleaned or restored to original condition.

4. Each subcontractor; i.e. mechanical, plumbing, electrical, etc., shall provide and maintain the same standards where directed, any watertight storage sheds required for storage of their materials.
5. Temporary field offices shall be heated with liquid propane or natural gas; electric heat will not be allowed. (NOT REQUIRED)

B. Sanitary Facilities:

1. General Contractor shall install single occupancy self-contained toilet units of the chemical, aerated recirculation or combustion type, properly vented and fully enclosed with glass fiber reinforced polyester shell.
2. Maintain in a sanitary condition at all times.
3. Construction personnel are not allowed to use existing building washroom facilities.

C. First Aid Supplies:

1. The General Contractor and Subcontractors shall comply with governing regulations and recognized recommendations within the construction industry.

D. Temporary Roads:

1. General Contractor shall provide and maintain in good condition any temporary roads, drives or staging areas required by any trade for access to construction.

E. Temporary Fire Protection:

1. The General Contractor and subcontractors shall keep their area clear of combustible debris. Each contractor, who is welding, cutting or performing any operation that may result in a fire, shall have an approved fire-extinguishing device in the area.

F. Temporary Controls:

1. The General Contractor shall provide for snow plowing, site cleaning, dust control and maintenance of site traffic, including the Owner's use of the site.

G. Watchman:

1. Not Used

H. Occupied Areas:

1. Not Used

I. Use of Premises:

1. All workmen shall park their cars in areas designated by the General Contractor's

Superintendent as agreed to by the Owner. This ruling must be enforced by the General Contractor's Superintendent.

2.03 TEMPORARY FENCING & BARRICADES

- A. The General Contractor and each Subcontractor or Sub-subcontractor shall provide for their work: Barricades, Warning Signs & Lights: Comply with recognized standards and code requirements for erection of substantial barricades where needed to prevent accidents. Paint with appropriate colors and warning signs to inform personnel at the site and the public, of the hazard being protected against. Provide lighting where needed, including flashing red lights where appropriate.
- B. Provide and maintain for the duration of construction a temporary fence if so indicated on the drawings, of a design and type needed to prevent entry onto the Work by the public.
- C. Interior barricades shall be constructed of wood framing and drywall and be reasonably dust tight. Provide fire-rated and non-fire rated temporary partitions where called for on the plans or as directed by the Architect or Architect's Representative in the field.

2.04 WEATHER PROTECTION

- A. The General Contractor shall provide all temporary insulated enclosures and protective coverings for weather and moisture protection of existing building structure/components during construction and until the completion of building project per the requirements of Section 01522.

2.05 PROJECT SIGNS (NOT REQUIRED)

- A. Prior to start of construction, the General Contractor shall secure from the Architect requirements for a 6' x 6' job sign constructed of 3/4" M.D.O. plywood and meeting local zoning requirements. Mount at the job site where directed by the Architect. Layout of sign by Architect.
- B. Sign shall be painted two (2) coats of approved paint, giving name of project in large letters and name of Architect and General Contractor in small letters, and such other information as the Contractor may be directed to include.
- C. Except as otherwise specifically approved by the Architect, do not permit other signs or advertising on the job site.

2.06 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to substantial completion inspection.
- B. Remove underground installations to a minimum depth of two (2') feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 3. EXECUTION

3.01 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.
- B. Establish a system for daily collection and disposal of waste materials. Enforce requirements strictly. Do not hold collected materials longer than 4 days.
 - 1. Burying or burning of waste materials on the site or washing waste material down sewers will not be permitted.
- C. Each subcontractor, in agreement with the contractor, shall maintain and enforce regulations covering all fire hazards, including smoking, and shall provide adequate fire extinguishers and other protective measures in proper locations. Additionally, enforcement of all applicable provisions of the Michigan Occupational Safety and Health Act shall be the responsibility of the General Contractor.

END OF SECTION 015000

SECTION 017000 - CONTRACT CLOSEOUT

1.0 GENERAL

- A. Attention is directed to Division 0, Bidding and Contract Requirements, and to Division 1, General Requirements, which are hereby made a part of this specification.

1.1 CONTRACT CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and Work is substantially complete in accordance with Contract Documents and ready for Architect/Engineer's inspection. Identify any and all items that remain to be completed or corrected.
- B. After inspection by Owner and Architect, and if the Architect concurs that work is substantially completed, he shall prepare a Certification of Substantial Completion on A.I.A. Form G704, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the Architect, Owner and General Contractor.
- C. When the Contractor considers the work to be complete, he shall submit a final request for inspection. The Architect, Owner, and General Contractor shall inspect the work and if found to be acceptable, the Architect shall request the Contractor to make closeout submittals.
- D. If the Contractor does not have work completed in accordance with the contract documents and ready for final inspection, and the Architect must make an additional final inspection trip, the cost of this final inspection(s) shall be deducted from the contract.
- E. When Architect and Owner complete final inspection and approve the project, the Contractor shall submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due. If required, the Architect will prepare a final change order reflecting approved adjustments to the contract sum which were not previously made by change orders.

1.2 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. If the Contractor fails to clean up at the completion of the work, the Owner may do so and the cost thereof shall be charged to the Contractor(s) as the Architect so determines.
- C. Clean debris from site, roofs, gutters, downspouts, and drainage systems.
- D. Remove waste and surplus materials, rubbish, demolition materials, and construction facilities from the site. Burning of rubbish and debris on the premises will not be permitted at any time.
- E. Contractor shall repair all damaged site work as a result of demolition or construction.

1.3 ADJUSTING

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

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of Contract Documents to be utilized for record documents. This requirement is for all trades, architectural, mechanical, and electrical.
- B. Record actual revisions to the Work. Record information concurrent with construction progress.

- C. Specifications: Legibly mark and record at each Product Section a description of actual Products installed.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.
- E. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit to the Architect two (2) sets prior to final inspection, bound in 8-1/2 x 11 inch text pages, three D size ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", and title of project.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized, with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents:
 - 1. Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Operation and maintenance instructions, arranged by system.
 - 3. Project documents and certificates.

1.6 WARRANTIES

- A. Provide duplicate notarized copies.
- B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- C. Submit to Architect prior to final Application for Payment.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS (NOT USED)

END OF SECTION 017000

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:
 - 1. Section 03 3003 Cast-In-Place Concrete Requirements for Floor Slabs for additional requirements for Moisture Vapor Reduction Admixtures.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.

1.03 INFORMATIONAL SUBMITTALS

- A. Material certificates.
- B. Material test reports.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1.05 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.07 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1.
 - 1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.01 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301.
 - 2. ACI 117.

2.02 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.03 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.
- C. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

- D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.04 CONCRETE MATERIALS

- A. Cementitious Materials:
 - 1. Portland Cement: ASTM C 150/C 150M, Type I, gray.
 - 2. Fly Ash: ASTM C 618, Class F or C.
 - 3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, graded.
 - 1. Maximum Coarse-Aggregate Size: 1 inch nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C 260/C 260M.
- D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Refer to 03 3003 for Moisture Vapor Reducing Admixture
- E. Water: ASTM C 94/C 94M and potable.

2.05 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation; Admixture Systems.
 - b. Dayton Superior.
 - c. Euclid Chemical Company (The); an RPM company.
 - d. L&M Construction Chemicals, Inc.
 - e. Sika Corporation.
 - f. W. R. Meadows, Inc.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation; Admixture Systems.
 - b. ChemMasters, Inc.
 - c. Dayton Superior.
 - d. Euclid Chemical Company (The); an RPM company.
 - e. L&M Construction Chemicals, Inc.
 - f. W. R. Meadows, Inc.

2.06 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.07 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in concrete, as required, for placement and workability.

2.08 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Refer to structural general notes.

2.09 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.010 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

3.02 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.03 VAPOR-RETARDER INSTALLATION

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.04 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.05 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.06 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3.07 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.08 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
1. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 2. Finish and measure surface, so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinnest method. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.09 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

3.010 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.011 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

END OF SECTION 03 3000

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- E. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
 2. Parking vehicles or equipment.

3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."
 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.
- C. Removal of underground utilities is included in Division 33 Sections.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
 - 2. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth indicated on Drawings in a manner to prevent intermingling with underlying subsoil or other waste materials.

- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparing subgrades for turf and grasses.
 - 2. Excavating and backfilling for goal post.

1.2 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- D. Fill: Soil materials used to raise existing grades.
- E. Structures: Foundations or other man-made stationary features constructed above or below the ground surface.
- F. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- G. Utilities: On-site underground pipes.

1.3 QUALITY ASSURANCE

- A. Preexcavation Conference: Conduct conference at Project site.

1.4 PROJECT CONDITIONS

- A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.5 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.6 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal, or per plans, so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under footings and foundations, use engineered fill.

3.7 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.8 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
 3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.9 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 1. Turf or Unpaved Areas: Plus or minus 1 inch (25 mm).

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.11 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 329200 – TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes seeding.

1.2 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product certificates.
- C. Planting Schedule: Indicating anticipated planting dates.

1.4 QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.

1.5 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 - 1. Seeded Lawns: 60 Calendar days from date of Substantial Completion.

- B. Mow lawn as soon as top growth is tall enough to cut. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings.

1.6 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: March 15 – May 15.
 - 2. Fall Planting: Labor day – October 15.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

PART 2 - PRODUCTS

2.1 SEED

- A. Seed Species: State-certified seed of grass species, as follows:
- B. Lawn Areas: 30% Perennial Ryegrass, 30% Kentucky Bluegrass, 40% Creeping Red Fescue.

2.2 PLANTING MATERIALS

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Surface soil shall be supplemented with imported or manufactured topsoil from off-site sources.
- B. Inorganic Soil Amendments:
 - 1. Lime: ASTM C 602, Class T or O, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
 - 2. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 (3.35-mm) sieve and a maximum 10 percent passing through No. 40 (0.425-mm) sieve.
 - 3. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
 - 4. Aluminum Sulfate: Commercial grade, unadulterated.
- C. Organic Soil Amendments
 - 1. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.

2. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with pH range of 3.4 to 4.8.
 3. Peat: Finely divided or granular texture, with pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having water-absorbing capacity of 1100 to 2000 percent.
 4. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.
- D. Fertilizer:
1. Chemical Fertilizer: 12:12:12.
- E. Mulches:
1. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
 2. Peat Mulch: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with pH range of 3.4 to 4.8.
 3. Peat Mulch: Finely divided or granular texture, with pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having water-absorbing capacity of 1100 to 2000 percent.
 4. Wood Chips for Landscape-Drainage Beds: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

PART 3 - EXECUTION

3.1 LAWN PREPARATION

- A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- B. Apply chemical fertilizer directly to subgrade before loosening. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
- C. Spread planting soil mix to a depth of 4 inches (100 mm) but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- D. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.

2. Loosen surface soil to a depth of at least of 6 inches (150 mm). Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches (100 mm) of soil. Till soil to a homogeneous mixture of fine texture.
 3. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, trash, and other extraneous matter. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- E. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- F. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- G. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- H. Provide wood chips at all roof drainage locations where water is discharged to the ground.

3.2 SEEDING

- A. Sowing rates vary with grass species and mixtures. Revise first paragraph below to suit Project.
- B. Sow seed at the rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m).
- C. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

3.3 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer and fiber mulch in water, using equipment specifically designed for hydroseeding application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
1. Mix slurry with nonasphaltic tackifier.
 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.4 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

END OF SECTION 329200