



PROJECT MANUAL

for

Sauk County Farm Education Hub Phase 1

Sauk County Land Resources and Environment

December 29, 2023

S&A Project No: 123.0424.30

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PROFESSIONAL CERTIFICATIONS

I hereby certify that this report, drawing, or specification was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Wisconsin.



Andy Meessmann, PLA.

Date: 12-29-2023

Reg. No. LA-786-14

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INVITATION TO BID
for
Sauk County Farm Education Hub – Phase 1
Sauk County, WI

BIDS CLOSE: TBD

Sauk County will receive sealed bids for the Sauk County Farm Education Hub – Phase 1 at Sauk County Land Resources and Environment, 505 Broadway, Baraboo, WI 53913. At the time and date stated above, all bids will be publicly opened and read aloud.

The work for which bids are asked includes the following:

Sauk County Farm Education Hub – Phase 1: A site restoration of approximately 14-acres that includes gravel roads, native landscape restoration, trees, site monumentation, and gravel parking.

Electronic bidding documents are available from the County. Please email saukCountyemail.org to receive a copy of the bid documents.

The County reserves the right to reject any and all bids, to waive any technicality and to accept any bid that it deems advantageous. All bids shall remain subject to acceptance for forty-five (45) days after the time set for bid opening. The Contract award shall be made based on the lowest responsive and responsible Bidder.

Published by the authority of the [Sauk County, NAME, Role.](#)

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
- 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 - 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 - 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 - 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 - 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 - 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 - 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 - 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 - 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 - 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 - 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

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

B. *Resolving Discrepancies*

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

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

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

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

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

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

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

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

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur:* Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities:* Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

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

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

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

7.11 *Laws and Regulations*

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

7.12 *Record Documents*

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

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

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

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

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

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
 - 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
 - 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

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

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

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

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

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

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

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

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

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents

and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 - 1. Electronic Documents that are available in native file format include CAD drawings:
 - a. EXFT Demo
 - b. PRFT
 - c. GRAD
 - d. UTIL
 - e. LAND
 - 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
 - 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
 - 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.

- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A pre-bid conference will not be conducted for this Project.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
4. *Geotechnical Baseline Report/Geotechnical Data Report*: The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).

- a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (“Baseline Conditions”). The GBR is a Contract Document.
 - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
 - c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
 - d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- 5.03 *Other Site-related Documents*
- A. No other Site-related documents are available.
- 5.04 *Site Visit and Testing by Bidders*
- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
 - B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
 - C. A Site visit is scheduled for [designate, date, time and location]. Maps to the Site will be made available upon request.
 - D. Bidders visiting the Site are required to arrange their own transportation to the Site.
 - E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns,

or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

- G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 Owner's Safety Program

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

- A. Andy Meessmann ameessmann@snyder-associates.com . 608.838.0444.

- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 Bid security is not required for this project.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. Each such request shall include the Manufacturer’s Certification for Compliance with AIS. Refer to the Manufacturer’s Certification form provided in these construction Contract Documents. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner. Substitutes and “or-equal” materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.05 and 7.06 of the General Conditions after the Effective Date of the Contract. Each such request shall include Manufacturer’s Certification letter to document compliance with AIS requirements of Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference, if applicable. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as

supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. electrical, masonry, concrete, landscape
- 11.02 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.02 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid,

and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
 - C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.

- D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from Wisconsin state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 23 – FEDERAL REQUIREMENTS

- 23.01 If the contract price is in excess of \$100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.
- 23.02 Federal requirements at Article 19 of the Supplementary Conditions apply to this Contract.
- 23.03 American Iron and Steel requirements apply to this project.

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Sauk County Land Resources and Environment, 505 Broadway, Baraboo, WI 53913
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data; ~~and~~
 - G. If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplementary Conditions of the Construction Contract (EJCDC C-800);
 - H. If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);
 - I. If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q Exhibit A-1, Certification for Contracts, Grants, and Loans.

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES**3.01 Unit Price Bids**

A. Bidder will perform the following Work at the indicated unit prices:

ITEM #	BID ITEM	TOTAL	UNIT	UNIT PRICE	ITEM TOTAL
GENERAL PROVISIONS					
1	Mobilization	1	LS	\$	\$
DEMOLITION					
2	Clearing and Grubbing	1	LS	\$	\$
3	Removals - Poles, Manholes, Culvert, Concrete and asphalt path, existing entry and gravel shoulder cut	1	LS	\$	\$
EARTHWORK					
4	Topsoil Strip, Stockpile, & Repurpose	1	LS	\$	\$
5	Unclassified Excavation	1	LS	\$	\$
6	Fine grading	1	LS	\$	\$
ROADS AND RELATED WORK					
7	1 1/4" Aggregate Base Course	7,337	SY	\$	\$
8	Pulverization (Existing Roads and Parking)	6,900	SY	\$	\$
9	Concrete at 5" Depth	4,285	SF	\$	\$
10	Concrete at 8" Depth	5,020	SF	\$	\$
11	Asphalt Entry Way 4.25" Thick	320	SY	\$	\$
12	Refresh existing gravel road with 2" gravel overlay	1,000	SY	\$	\$
13	Pavement Marking	1	LS	\$	\$
SITE UTILITIES					
14	Electrical Circuits (conduit and wiring)	1,750	LF	\$	\$
15	Electrical Transformer	2	EA	\$	\$
16	GFCI Outlet	5	EA	\$	\$
17	Street Light with Concrete Base	2	EA	\$	\$
18	Water Lateral at 1 1/2" (includes hose bibs)	750	LF	\$	\$
19	6" PVC Underdrain with Observation Port	131	LF	\$	\$
20	12" RCP Storm Sewer	152	LF	\$	\$
21	15" RCP Storm Sewer	44	LF	\$	\$
22	18" RCP Storm Sewer	42	LF	\$	\$
23	Pond Outlet Structure	1	EA	\$	\$
24	Apron endwall 12"	7	EA	\$	\$
25	Apron endwall 15"	4	EA	\$	\$
26	Apron endwall 18"	2	EA	\$	\$
EROSION CONTROL					
27	Stone Construction Entrance	1	EA	\$	\$
28	Silt Fence	715	LF	\$	\$

EJCDC® C-410, Bid Form for Construction Contract.

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Modified to include RD edits from RUS Bulletin 1780-26 (6/16/2020).

29	Rip Rap	115	CY	\$	\$
30	Sediment Logs	12	EA	\$	\$
31	Erosion Mat	5,160	SY	\$	\$
32	Concrete Washout	1	EA	\$	\$
	SITE AMENITIES				
33	Entry Monumentation	1	LS	\$	\$
34	Relocate existing signs	1	LS	\$	\$
35	Stabilized Pathway	15,075	SF	\$	\$
36	Shelter 24' x 36'	1	LS	\$	\$
37	Bathroom Screening Structure	1	LS	\$	\$
38	ADA Compliant Porta Potty	2	EA	\$	\$
39	Interpretive Exhibit	2	EA	\$	\$
40	Deer Fence at 8' and Gates at 10' and 12' widths	1	LS	\$	\$
41	ADA Compliant Raised Planters	1	LS	\$	\$
	LANDSCAPE				
42	Landscape Boulders	1	LS	\$	\$
43	Trees (bareroot and deer protection)	1	LS	\$	\$
44	Tree Transplant	10	EA	\$	\$
45	Prairie Plants at 4" Plug	1	LS	\$	\$
46	Community Garden Soil	346	CY	\$	\$
47	Turf Seed	64,127	SF	\$	\$
48	Prairie Seed Mix Type and Oak Savanna Seed Mix	420,303	SF	\$	\$
49	No Mow Seed	28,664	SF	\$	\$
	Bioretention				
50	Bio Plugs	9,400	SF	\$	\$
51	Coconut Mat	1,050	SY	\$	\$
52	Geotextile Fabric	1,050	SY	\$	\$
53	Engineered Soil	700	CY	\$	\$
54	Rock Fill	1,050	CY	\$	\$
				Base Bid Total	\$ -
	BID ALT. 1				
1	New Well and existing well abandonment	1	LS	\$	
				Bid Alt. 1 Total	\$ -

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work, including all American Iron and Steel requirements.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable)

NOTICE OF AWARD

Date of Issuance:			
Owner:	Sauk County	Owner's Project No.:	
Engineer:	Snyder & Associates	Engineer's Project No.:	123.0424.30
Project:	Sauk County Farm Education Hub – Phase 1		
Contract Name:			
Bidder:			
Bidder's Address:			

You are notified that Owner has accepted your Bid dated _____ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

The Contract Price of the awarded Contract is \$ _____. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Three (3) unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner three (3) counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

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

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner:

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

AGREEMENT BETWEEN OWNER AND CONTRACTOR

FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between Sauk County ("Owner") and _____ ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Grading for the placement of asphalt and gravel roads and parking lot, native seeding, and planting of trees.

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: 14 acre restoration of a Sauk County park for the use of the public that includes native seed restoration, installation of trees and updated gravel, asphalt and parking areas.

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained _____ ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by Snyder & Associates, Andy Meessmann, PLA.

ARTICLE 4—CONTRACT TIMES

- 4.01 *Time is of the Essence*
- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times: Dates*
- A. The Work will be substantially complete on or before [date], and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before [date].
- 4.05 *Liquidated Damages*
- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also

recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion*: Contractor shall pay Owner \$[number] for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$[number] for each day that expires after such time until the Work is completed and ready for final payment.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of \$_____.
- All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.
- B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$[number].
- D. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 95 percent of the value of the Work completed (with the balance being retainage).
 - 1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work

remain satisfactory to Owner and Engineer, there will be no additional retainage;
and

- b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion of the entire construction to be provided under the construction Contract Documents, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

A. All amounts not paid when due will bear interest at the rate of **[number]** percent per annum.

ARTICLE 7— CONTRACT DOCUMENTS

7.01 *Contents*

A. The Contract Documents consist of all of the following:

1. This Agreement.
2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
3. General Conditions.
4. Supplementary Conditions.
5. Specifications as listed in the table of contents of the project manual (copy of list attached).
6. Drawings (not attached but incorporated by reference) consisting of 17 sheets with each sheet bearing the following general title: Sauk County Farm Education Hub – Phase 1
7. Addenda (numbers _____ to _____, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
 - a. Sauk County Education Hub – Reedsburg, WI – Geotechnical Report

10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the

standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

(If **[Type of Entity]** is a corporation, attach evidence of authority to sign. If **[Type of Entity]** is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

(If **[Type of Entity]** is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

License No.: _____
(where applicable)

State: _____

NOTICE TO PROCEED

Owner: Sauk County Owner's Project No.: _____
Engineer: Snyder & Associates Engineer's Project No.: 123.0424.30
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

Before starting any Work at the Site, Contractor must comply with the following:

Owner: _____
By *(signature)*: _____
Name *(printed)*: _____
Title: _____
Date Issued: _____
Copy: Engineer

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Sauk County	Owner's Project No.:	
Engineer:	Snyder & Associates	Engineer's Project No.:	123.0424.30
Contractor:		Contractor's Project No.:	
Project:			
Contract Name:			

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion: _____

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

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

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

Engineer

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.8 – Add the following at the end of the Paragraph:

The Change Order form to be used on this Project is EJCDC C-941 (2018). Agency approval is required before Change Orders are effective.

SC-1.01.A.30 – Add the following at the end of the Paragraph:

For the purposes of Rural Development, this term is synonymous with the term "applicant" as defined in 7 CFR 1780.7 (a) (1), (2) and (3) and is an entity receiving financial assistance from the federal programs.

SC-1.01.A.50 – Add the following at the end of the Paragraph:

The Work Change Directive form to be used on this Project is EJCDC C-940 (2018). Agency approval is required before a Work Change Directive is issued.

SC-1.01.A.51 – Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. Agency - The Project is financed in whole or in part by USDA Rural Utilities Service pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through the USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

SC-1.01.A.52 – Add the following new paragraph with the title "American Iron and Steel Definitions" immediately after Paragraph 1.01.A.51:

52.a *American Iron and Steel (AIS)* - Requirements mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference for “iron and steel products,” meaning the following products, if made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and Construction Materials. AIS requirements apply in each of the several states, the District of Columbia, and each federally recognized Tribe, but not the U.S. Territories.

52.b *Coating* - A covering that is applied to the surface of an object. If a Coating is applied to the external surface of a domestic iron or Steel component, and the application takes place outside of the United States, said product would be considered a compliant product under the AIS requirements. Any Coating processes that are applied to the external surface of Iron and Steel components that would otherwise be AIS compliant would not disqualify the product from meeting the AIS requirements regardless of where the Coating processes occur, provided that final assembly of the product occurs in the United States. This exemption only applies to Coatings on the *external surface* of Iron and Steel components. It does not apply to Coatings or linings on internal surfaces of Iron and Steel products, such as the lining of lined pipes. All Manufacturing Processes for lined pipes, including the application of pipe lining, must occur in the United States for the product to be compliant with AIS requirements.

52.c *Construction Materials* - Those articles, materials, or supplies made primarily of iron and/or steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered “structural steel”. Note: Mechanical and electrical components, equipment and systems are not considered Construction Materials. See definitions of Mechanical Equipment and Electrical Equipment.

52.d *Contractor’s Certification* - Documentation submitted by the Contractor upon Substantial Completion of the Contract that all Iron and Steel products installed were Produced in the United States.

52.e *De Minimis* - Various miscellaneous, incidental low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. Examples of *De Minimis* components could include small washers, screws, fasteners (such as “off the shelf” nuts and bolts), miscellaneous wire, corner bead, ancillary tube, signage, trash bins, door hardware etc. Costs for such *De Minimis* components cumulatively may comprise no more than a total of five percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed one percent of the total cost of the materials used in and incorporated into a project.

52.f *Electrical Equipment* - Typically any machine powered by electricity and includes components that are part of the electrical distribution system. AIS does not apply to Electrical Equipment.

52.g *Engineer's Certification* - Documentation submitted by the Engineer that Drawings, Specifications, and Bidding Documents comply with AIS.

52.h *Iron and Steel products* - The following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and Construction Materials. Only items on the above list made primarily of iron or steel, permanently incorporated into the project must be Produced in the United States. For example, trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. iron or steel.

52.i *Manufacturer* - A Supplier, fabricator, distributor, materialman, or vendor is an entity with which the Owner, Contractor or any subcontractor has contracted to furnish materials or equipment to be incorporated in the project by the Owner, Contractor or a subcontractor.

52.j *Manufacturer's Certification* - Documentation provided by the Manufacturer stating that the Iron and Steel products to be used in the project are produced in the United States in accordance with American Iron and Steel (AIS) Requirements. If items are purchased via a Supplier, distributor, vendor, etc. from the Manufacturer directly, then the Supplier, distributor, vendor, etc. will be responsible for obtaining and providing these certifications to the parties purchasing the products.

52.k *Manufacturing Processes* - Processes such as melting, refining, pouring, forming, rolling, drawing, finishing, and fabricating. Further, if a domestic Iron and Steel product is taken out of the United States for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the material(s), if any, being applied as a Coating are similarly not covered. Non-iron or Steel components of an Iron and Steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-Iron and Steel components do not have to be of domestic origin. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-U.S. sources.

52.l *Mechanical Equipment* - Typically equipment which has motorized parts and/or is powered by a motor. AIS does not apply to Mechanical Equipment.

52.m *Minor Components* - Components *within* an iron and/or Steel product otherwise compliant with the American Iron and Steel requirements; this waiver is typically used by Manufacturers. It differs from the *De Minimis* definition in that *De Minimis* pertains to the entire project and the minor component definition pertains to a single product. This waiver allows use of non-domestically produced miscellaneous Minor Components comprising up to five percent of the total material cost of an otherwise domestically produced Iron and Steel product. However, unless a separate waiver for a product has been approved, all other Iron and Steel components in said product must still meet the AIS requirements. This waiver does not exempt the whole product from the AIS requirements only Minor Components within said product and the iron or Steel components of the product must be produced domestically. Valves and hydrants are

also subject to the cost ceiling requirements described here. Examples of Minor Components could include items such as pins and springs in valves/hydrants, bands/straps in couplings, and other low-cost items such as small fasteners etc.

52.n *Municipal Castings* - Cast iron or Steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and solid waste infrastructure.

52.o *Primarily Iron or Steel* - A product is made of greater than 50 percent iron or Steel on a materials cost basis. An exception to this definition is reinforced precast concrete (see Definitions). All technical specifications and applicable industry standards (e.g. NIST, NSF, AWWA) must be met. If a product is determined to be less than 50 percent iron and/or steel, the AIS requirements do not apply. For example, the cost of a fire hydrant includes:

- ☐ The cost of materials used for the iron portion of a fire hydrant (e.g. bonnet, body and shoe); and
- ☐ The cost to pour and cast to create those components (e.g. labor and energy).

Not included in the cost are:

- ☐ The additional material costs for the non-iron or Steel internal workings of the hydrant (e.g. stem, coupling, valve, seals, etc.); and
- ☐ The cost to assemble the internal workings into the hydrant body.

52.p *Produced in the United States* - The production in the United States of the iron or Steel products used in the project requires that all Manufacturing Processes must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives.

52.q *Reinforced Precast Concrete* – Reinforced Precast Concrete structures must comply with AIS, regardless of whether or not it consists of at least 50 percent iron or steel. The reinforcing bar and wire must be Produced in the United States and meet the same standards as for any other iron or Steel product. Additionally, the casting of the concrete product must take place in the United States. The cement and other raw materials used in concrete production are not required to be of domestic origin. If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered Construction Materials and must be Produced in the United States.

52.r *Steel* - An alloy that includes at least 50 percent iron, between 0.02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of Steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of Steel covers carbon steel, alloy steel, stainless steel, tool steel, and other specialty steels.

52.s *Structural Steel* - Rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees, and zees. Other shapes include but are not limited to, H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 *Copies of Documents*

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

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

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor **5** printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

- B. *Electronic Documents Protocol:* The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.
 - 1. *Basic Requirements*
 - a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information

contained therein is subject to the requirements of this Protocol and other provisions of the Contract.

- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is [number] MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for

maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.
- h. The Owner will operate a Project information management system (also referred to in this EDP as "Project Website") for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website:

- 1) Describe the period of time during which the Project Website will be operated and be available for reliance by the parties;
- 2) Provide any minimum system infrastructure, software licensing and security standards for access to and use of the Project Website;
- 3) Describe the types and extent of services to be provided at the Project Website (such as large file transfer, email, communication and document archives, etc.); and
- 4) Include any other Project Website attributes that may be pertinent to Contractor's use of the facility and pricing of such use.

C. *Software Requirements for Electronic Document Exchange; Limitations*

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
 - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. *Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied

warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.

- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
 - c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$[number] per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01.A – Delete the last sentence of paragraph.

4.05 Delays in Contractor's Progress

Guidance Notes—Defining Weather-related Delays—GC-4.05 is arguably one of the most important provisions in the General Conditions because it allocates the risk of delays in the Work. Delays may be costly to the Contractor and Owner, and detrimental to the success of the Project. Delays beyond the

Contract Times have the potential to result in the imposition of liquidated and special damages included in the Contract. When there is any change in the allocation of risks for delays from what is included in GC-4.05, a corresponding SC-4.05 is required.

Particular attention should be paid to the provisions of GC-4.05.C, which is the Contract's force majeure clause governing allocation of risks for delays that are beyond the control of both the Contractor and the Owner. Because weather-related delays are so common, the drafter of the Supplementary Conditions may want to consider including a more specific provision regarding weather-related delays, particularly in cases where adherence to the Contract Times is extremely important and where the Work will be of such a nature as to be susceptible to weather-related delays. Sample contract language is presented below as SC-4.05.C. As the following commentary indicates, other approaches are possible and should be considered.

The General Conditions indicate at GC-4.05.C.2 that the Contractor will be entitled to an equitable adjustment in Contract Times if the Work is delayed by "abnormal weather conditions." This standard will be sufficient in most situations, and is applicable to the full range of possible bad weather events. However, the drafter of the specific Contract may wish to define "abnormal weather" by reference to objective, measurable weather factors. To draft a supplemental weather-delay provision that defines abnormal weather, the drafter must consider the threshold level of severity of weather that may affect the progress of the Work—the Contractor must anticipate and cope with the weather up to the defined threshold, and if the threshold is reached or exceeded, the Contractor will be entitled to additional time to complete the Work. One such threshold level of severity could be specified to apply to the entire construction (this is the approach taken in the sample SC-4.05.C), or separate levels could be specified for different elements of the Work. As an example of the second alternative, and while it is acknowledged that the parties may not know specific construction activities at the time the initial Contract Documents are prepared, presumed weather severities could be tailored to the materials or type of construction involved. For example, if the Work involves reinforced concrete, the weather conditions that could delay concrete pouring might not reasonably delay erection of formwork or placement of reinforcing steel. The possibility of lingering effects should be considered when drafting such provisions.

In some localities there may be well established and widely accepted procedures for monitoring and evaluating the weather impacts on a construction project, such as the procedures set forth in municipal or state department of transportation standard specifications. The drafter of the Contract Documents may wish to adopt such procedures if relevant to the specific project, as an alternative to the sample procedures set out in the optional SC-4.05.C.

SC-4.05.C, if adopted, ties the definition of "abnormal weather" to two factors, precipitation and temperature. The drafter must establish a threshold amount of daily precipitation that is tolerable in the specific location—any day that incurs an amount at or above the threshold is a bad weather day. Similarly, the drafter must define acceptable temperature thresholds—dropping below the minimum or rising above the maximum will result in categorization as a bad weather day. Finally, the drafter must define how many bad weather days in each category (precipitation, excessively cold weather, excessively hot weather) are foreseeable (essentially "normal" or tolerable) in each month. In most locations, the normal expectation for bad weather in a month will vary with the seasons.

Even if the parties anticipate a short project duration, the table (Exhibit B—Foreseeable Bad Weather Days) that is incorporated in SC-4.05.C should encompass the entire calendar year to ensure that, regardless of postponements, suspensions, or delays, the Work as actually performed is contractually covered by SC-4.05.C. **[SC-4.05.C includes and incorporates the table identified as Exhibit B—Foreseeable Bad Weather Days (located with other exhibits at the end of C-800)].**

EJCDC® C-800, Supplementary Conditions of the Construction Contract.

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Modified to include RD edits from RUS Bulletin 1780-26 (6/16/2020).

An important step in drafting a supplemental clause regarding weather delays is establishing the source for actual weather records and site conditions (for lingering effects) and the required content of such records. A variety of sources may be viable options for weather records, but in general it is better when the weather monitoring site is relatively close to the Site. Sources may include the National Weather Service, media outlets that maintain weather-monitoring networks, certain schools and universities, and possibly wastewater conveyance utilities. Before specifying the source of data, verify that the data is available, and the type of data collected.

The text of SC-4.05.C, defining “abnormal weather” based on precipitation and temperature extremes, is indicated below. If the drafter elects to use this optional Supplementary Condition, edit the example language to suit the Project, and provide the weather thresholds required in the text and in the Exhibit B table.

A few specific Guidance points for SC-4.05.C:

1. Edit Paragraphs SC-4.05.C.5.b “1).i)” and “1).ii)”, to suit the Project; the times specified in Paragraph “1).i)” are presumed times for wet weather to render the Site inoperable for the following workday.
2. Based on recorded weather data available from the weather station indicated in Paragraph SC-4.05.C.5.b “2)”, insert in SC-4.05.C.5.b “1).i)” and “1).ii)” the threshold one-day precipitation quantity and the threshold temperatures (minimum and maximum).
3. Insert in the appropriate blanks in Paragraph SC-4.05.C.5.b “2)” below the entity operating and maintaining the weather station, and the location of the weather station; for example, “National Weather Service weather monitoring station at the Buffalo-Niagara International Airport.” For the selected entity and site, verify the data types and frequency available for the particular weather monitoring station.
4. Based on data from the weather monitoring station indicated in Paragraph SC-4.05.C.5.b “2)”, fill in all the cells in the table identified as Exhibit B—Foreseeable Bad Weather Days. Optimally, data indicated should be averaged over a period of not less than five years although other durations may be appropriate. Edit the sample language when other foreseeable weather factors can affect the construction, such as high winds or other factors.

SC-4.05 Paragraph is mandatory for WWD projects.

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*

- a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled. **Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions**

will be submitted to the Engineer within five days of the end of the abnormal weather condition event. It is the responsibility of the Contractor to provide the information listed in SC 4.05.C.5.b.

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
 - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **[threshold precipitation quantity]** of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.
 - ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: **[temperature]** degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: **[temperature]** degrees Fahrenheit.
 - 2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by **[name of the entity operating the weather station]** weather monitoring station at **[location of the weather monitoring station]**.
 - 3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit **[exhibit number]**—Foreseeable Bad Weather Days.
 - 4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit **[exhibit number]**—Foreseeable Bad Weather Days will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 *Subsurface and Physical Conditions*

Guidance Notes—Reports and Drawings Containing Technical Data (Subsurface; Physical Conditions)

1. This is a mandatory Supplementary Condition. Paragraph 5.03, Subsurface and Physical Conditions, of the General Conditions requires the identification of reports and drawings that contain Technical Data

EJCDC® C-800, Supplementary Conditions of the Construction Contract.

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regarding subsurface and physical conditions at or adjacent to the Site. See GC-5.03.A.1 and 2. This will typically include current and recent geotechnical reports, drawings of existing subsurface and surface conditions (including structures such as buildings and foundations), and any other documents that Owner or Engineer has determined to contain reliable Site information. GC-5.03.A.3 requires the identification of the specific Technical Data in the reports and drawings. This is an important task because only the Technical Data is entitled to reliance by Contractor—the remainder of the contents of the reports and drawings does not receive this elevated status.

2. Typical examples of the contents of Site-related reports and drawings that might be categorized by Owner or Engineer as Technical Data for contractual purposes are:

- a. boring logs;
- b. recorded measurements of subsurface water levels;
- c. assessments of the condition of subsurface facilities;
- d. laboratory test results; and
- e. mapping based on remote sensing.

3. Use SC-5.03, presented immediately below, for the purpose of identifying the Site condition documents that contain Technical Data, and the specific Technical Data contained in each report and drawing.

4. In a change from the two previous editions of the EJCDC Construction Series documents (2013 and 2007), the user should not list all archival and other documents concerning the Site here in the Supplementary Conditions—as of 2018, for GC/SC-5.03 list in the Supplementary Conditions only those documents determined by Owner or Engineer to contain Technical Data.

5. *Filling in the tables:* SC-5.03.E contains a table for listing reports that contain Technical Data, and identifying that data; and SC-5.03.F contains a table for listing drawings that contain Technical Data. Examples of a completed row from each table follow, for illustrative purposes only:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Results of Investigation of Subsoil Conditions and Geotechnical Recommendations—Riverside Wastewater Treatment Plant	August 8, 2018	Boring Log, Test Site 1, at page 32 of Report.

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
Record Drawings: Route 24 Overpass Abutment Project	November 30, 2012	All information in drawings, with the exception of the contents of Drawings 001 and 005.

6. In addition to requiring the identification of Technical Data in SC-5.03, EJCDC also requires that Owner identify and disclose to Bidders archival and other Site-related documents known to Owner (but that do not contain Technical Data and therefore are not listed here in the Supplementary Conditions), in a list distributed with the Instructions to Bidders. See Instructions to Bidders, Article 5. The Bidders may then review documents of interest, and perhaps glean information useful to them in fashioning a bid and planning the Work. There is no requirement, however, that Bidders or the Contractor review the documents disclosed in the Instructions to Bidders, nor are they held accountable for any data or information in such documents; similarly, Owner has not verified the data or information in these documents, and is not responsible for their accuracy. The requirement that Contractor review and take responsibility for Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.
7. If the Supplementary Conditions neglect to expressly identify the Technical Data entitled to reliance, then certain data in documents such as a geotechnical report, environmental report, or similar investigative report prepared for the current Project are, by default definition, Technical Data upon whose accuracy Contractor may rely. See the default definition of Technical Data, GC-1.01.A.46.b.
8. Paragraph GC-5.03.B clarifies that Underground Facilities are shown or indicated in the Drawings. Requirements with respect to Underground Facilities are set forth in Paragraph GC-5.05.
9. Paragraph GC-5.06 requires disclosure of documents relating to Hazardous Environmental Conditions at the Site. Note that these requirements differ from the requirements regarding disclosure of documents relating to subsurface and physical conditions in GC-5.03, and here in SC-5.03.
10. If Owner elects to furnish a Geotechnical Baseline Report (GBR), use the alternate SC/GBR-5.03 and SC/GBR-5.04 presented in Exhibit C to this document, rather than the SC-5.03 version immediately following. **[Exhibit C is located at the end of C-800.]**

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Sauk County Ed Hub - Reedsburg WI - Geotechnical Report	August 9, 2023	Geotechnical Engineering Exploration and Analysis

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely: **[If there are no such drawings, so indicate in the table.]**

Drawings Title	Date of Drawings	Technical Data
No drawings		[Identify Technical Data]

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at **[location]** during regular business hours, or may request copies from Engineer.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
No reports		[Identify Technical Data]

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
No drawings		[Identify Technical Data]

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

SC-6.01 – EJCDC Guidance Notes – “Other Bonds,” Warranty Bond, Note 1. RD does not require a Warranty Bond, and RD will not accept a Warranty Bond in place of a Performance and Payment Bond. The decision to include a Warranty Bond is made by the Owner and their counsel. Please refer to EJCDC.

Guidance Notes—“Other Bonds,” Warranty Bond

1. *Other Bonds*

Paragraph 6.01.B states that if Contractor is required to provide a bond other than a performance or payment bond, the requirement will be set forth in the Supplementary Conditions. This statement is not relevant or related to a requirement that a Bidder must furnish a Bid Bond: such a requirement (if any) is part of the bidding process that occurs before entry into the construction contract, and the bid bond requirement would be included in the Instructions to Bidders. See Instructions to Bidders, Article 8. Rather, the reference is to any special purpose bond that is required.

2. Warranty Bond

Perhaps the most common “other” or special purpose bond that might be required is the warranty bond (also called a maintenance bond). A warranty bond provides assurance that Contractor (or if necessary the surety) will meet the contractual correction period obligations during a specified period of time after construction has been completed.

SC-6.01.B.1 presents model wording for requiring that Contractor furnish a warranty bond. EJCDC’s standard form for such a bond is EJCDC® C-612, Warranty Bond (2018); if SC-6.01.B.1 is used, the Warranty Bond form should be provided to bidders or prospective contractors with the Supplementary Conditions (typically as a part of the Bidding Documents).

The C-612 Warranty Bond is intended to be used to provide bonding for a period of time greater than one year after Substantial Completion. EJCDC® C-610, Performance Bond (2018) already obligates the surety with respect to the correction of defective Work (C-610, Paragraph 7.1), and has a duration sufficient to allow bond claims based on defects discovered during the standard one-year correction period (GC-6.01.A; C-610, Paragraph 11); and the purchase price charged for the performance bond is based on that bond remaining in effect during the one-year correction period. Thus, a warranty bond is not needed if the correction period remains the standard one year, and indeed would be redundant with the performance bond if used solely to cover that one-year correction period.

To avoid possible conflicts regarding responsibilities between the surety that issues the performance bond and the surety that issues the warranty bond, EJCDC recommends a requirement that the two bonds be issued by the same surety. See SC-6.01.B.3.

Although in theory a warranty bond could be furnished for a very lengthy duration (four or more years beyond Substantial Completion), such a lengthy bond would probably be commercially difficult to obtain and very expensive. EJCDC recommends an endpoint for the warranty bond of either two years after Substantial Completion (essentially extending the bonded coverage by one additional year) or three years after Substantial Completion (extending the bonded coverage by two additional years). These two recommended options are embedded in the C-612 Warranty Bond form.

By its terms the EJCDC warranty bond applies to the contractual correction obligation at GC-15.08. SC-6.01.B.2 extends that contractual correction period beyond its standard one-year duration—the contractual extension should match the Warranty Bond duration. For the sake of clarity, EJCDC recommends a cross-reference to Supplementary Condition SC-15.08.A—see Article 15 below.

Because correction period work is, in total, likely to cost only a modest fraction of the Contract Price, warranty bonds typically have a bond amount that is 10 or 15 percent of the Contract Price. The precise percentage required should be clearly indicated in the Supplementary Condition.

The suggested wording to extend the correction period and require that Contractor furnish a warranty bond follows:

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.B:

1. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be 2 years after Substantial Completion.
2. After Substantial Completion, Contractor shall furnish a warranty bond issued in the form of EJCDC® C-612, Warranty Bond (2018). The warranty bond must be in a bond

amount of 15 percent of the final Contract Price. The warranty bond period will extend to a date 2 years after Substantial Completion of the Work. Contractor shall deliver the fully executed warranty bond to Owner prior to or with the final application for payment, and in any event no later than 11 months after Substantial Completion.

3. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.H.2 of the General Conditions:

3. For the following Subcontractors, Suppliers, or categories of Subcontractor or Supplier, Contractor shall require the following specified insurance, with policy limits as stated:
[Identify Subcontractors, Suppliers, or categories of same, and insert specific insurance requirements and policy limits]

6.03 Contractor's Insurance

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **[Here list by legal name (not category, role, or classification) other persons or entities to be included as additional insureds. See GC-6.03.C.]**
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory

Workers' Compensation and Related Policies	Policy limits of not less than:
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$1,000,000
Bodily injury by disease—aggregate	\$1,000,000
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$1,000,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$1,000,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
 6. Any limitation or exclusion based on the nature of Contractor’s work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$
Products—Completed Operations Aggregate	\$
Personal and Advertising Injury	\$
Bodily Injury and Property Damage—Each Occurrence	\$

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$
Each Accident	\$
Property Damage	
Each Accident	\$
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$
General Aggregate	\$

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$[specify amount] after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$
General Aggregate	\$

- N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$
Annual Aggregate	\$

- O. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, Contractor shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within

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50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to Owner, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify Owner of such submittal.

[Insert additional specific requirements, commonly set by the railroad, here.]

Railroad Protective Liability Insurance	Policy limits of not less than:
Each Claim	\$
Aggregate	\$

- P. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor’s compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$
General Aggregate	\$

- Q. *Other Required Insurance:* **[Here list additional types and amounts of insurance that Contractor is required to carry.]**

6.04 *Builder’s Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A and insert the following in its place:

- A. Owner shall purchase and maintain builder’s risk insurance upon the Work on a completed value basis, in the amount of the Work’s full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder’s risk insurance are set forth in the Supplementary Conditions.

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

- F. *Builder’s Risk Requirements:* The builder’s risk insurance must:
1. be written on a builder’s risk “all risk” policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition

occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

- a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.
2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
 4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier). If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].
 5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].
 6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
 7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
 8. include performance/hot testing and start-up, if applicable.
 9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
 10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:

- a. **[Here list by legal name (not category, role, or classification) other persons or entities to be included on the builder's risk policy as named insureds. It is generally recommended to list the insured's full legal/contractual name, address, contact person, telephone, and e-mail address. Include only persons or entities that have property at the Site that is to be insured by the builder's risk insurance. If applicable, separately identify any mortgagee or lender required to be named as a loss payee.]**
11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:
 - a. **[Here list or provide cross-reference to specific items of Owner-furnished (or third-party furnished) equipment, and purchase value; do not list items whose value is already included in the Contract Price.]**
 12. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of \$[amount].
 13. In addition to the coverage sublimits stated above, the following coverages are also subject to sublimits, as follows:
 - a. **[Here list a specific coverage, or cause of loss, that has been determined to be likely to be subject to a sublimit. If not applicable, then delete Paragraph SC-6.04.F.13 in its entirety.]** If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provision:

- G. *Coverage for Completion Delays:* The builder's risk policy will include, for the benefit of Owner, loss of revenue and soft cost coverage for losses arising from delays in completion that result from covered physical losses or damage. Such coverage will include, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, compensation for loss of net revenues, rental costs, and attorneys' fees and engineering or other consultants' fees, if not otherwise covered.

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

- H. *Builder's Risk and Other Property Insurance Deductibles:* The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.
 1. The builder's risk policy (or if applicable the installation floater) will be subject to a deductible amount of no more than \$[number] for direct physical loss in any one occurrence.

SC-6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*

1. Contractor shall provide and maintain installation floater insurance on a broad form or "all risk" policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work ("Covered Property"). Coverage

under the Contractor's installation floater will include loss from covered "all risk" causes (perils) to Covered Property:

- a. of the Contractor, and Covered Property of others that is in Contractor's care, custody, and control;
 - b. while in transit to the Site, including while at temporary storage sites;
 - c. while at the Site awaiting and during installation, erection, and testing;
 - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable.
 3. The installation floater coverage will be in an amount sufficient to protect Contractor's interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
 4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 Labor; Working Hours

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be **7am to 6pm**
2. Owner's legal holidays are **[Here insert list of legal holidays]**.

SC-7.03 **Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site must be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday or Sunday or any legal holiday."**

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as **[Here insert parameters for compensated overtime hours]**.

SC-7.04.D – Add the following new paragraph immediately after Paragraph 7.04.C:

D. All Iron and Steel products must meet American Iron and Steel requirements.

SC-7.04.E – Add the following new paragraph immediately after Paragraph 7.04.D:

E. For projects utilizing a *De Minimis* waiver, Contractor shall maintain an itemized list of non-domestically produced iron or steel incidental components and ensure that the cost is less than 5% of total materials cost for project.

SC-7.05.A – Amend the third sentence of paragraph by striking out the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item is permitted,

SC-7.05.A.1.a.3 – Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.

SC-7.05.A.1.a.4 – Delete paragraph in its entirety and insert “Deleted.”

SC-7.05.B – Add the following at the end of paragraph:

Contractor shall include a Manufacturer’s Certification letter for compliance with American Iron and Steel requirements in support data, if applicable. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.

SC-7.06.A.3.a.2 – Remove “and” from the end of paragraph.

SC-7.06.A.3.a.3 – Add “; and” to the end of paragraph.

SC-7.06.A.3.a.4 – Add the following new paragraph immediately after Paragraph 7.06.A.3.a.3:

4. Comply with American Iron and Steel by providing Manufacturer’s Certification letter of American Iron and Steel compliance, if applicable. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.

SC-7.07.A – Amend by adding the following to the end of the paragraph:

The total amount of work subcontracted by the Contractor shall not exceed fifty percent of the Contract price without prior approval from the Owner, Engineer and Agency.

SC-7.07.B – Delete paragraph in its entirety and insert “Deleted”.

SC-7.07.E – Delete the second sentence of paragraph and insert the following in its place:

Owner may not require that Contractor use a specific replacement.

7.10 Taxes

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- A. Owner is exempt from payment of sales and compensating use taxes of the State Wisconsin and of cities and counties thereof on all materials to be incorporated into the Work.**
 - 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.**
 - 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.**

SC-7.12.A Amend paragraph by adding the following after "written interpretations and clarifications,":

Manufacturers' Certifications,

7.13 Safety and Protection

SC-7.13 Insert the following after the second sentence of Paragraph 7.13.G:

The following Owner safety programs are applicable to the Work: [Here expressly identify by title and/or date, any such Owner safety programs. If Owner's safety programs are included in or addressed in the Specifications, SC-7.13 may be used to provide a cross-reference to the Specification section].

SC-7.16.A.1.c – Amend paragraph by deleting the last period and adding:

, including Manufacturer's Certification letter for any item in the submittal subject to American Iron and Steel requirements and include the Certificate in the submittal. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC-7.16.C.9 – Add new paragraph immediately after Paragraph 7.16.C.8:

9. Engineer's review and approval of a Shop Drawing or Sample shall include review of Manufacturers' Certifications in order to document compliance with American Iron and Steel requirements, as applicable.

SC-7.17.F – Add new paragraph immediately after Paragraph 7.17.E:

F. Contractor shall certify upon Substantial Completion that all Work and Materials have complied with American Iron and Steel requirements as mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural

Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference. Contractor shall provide said Certification to Owner. Refer to General Contractor's Certification Letter provided in these Contract Documents.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 *Coordination*

Guidance Notes—Coordinating Other Work at Site—Paragraph 8.02 of the General Conditions requires that if in addition to retaining Contractor, Owner will arrange to have others perform work at the Site, Owner must provide to Contractor specified information regarding coordination of construction activities. (Note that Owner should provide specific information about the other work—nature of the work, scope, schedule, exact location—elsewhere in the Contract Documents or in other documentation.) When applicable, add the following to provide such information:

SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:

- C. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
 - 1. **[Here identify individual or entirety]** shall have authority and responsibility for coordination of the various contractors and work forces at the Site;
 - 2. The following specific matters are to be covered by such authority and responsibility: **[Here itemize such matters];**
 - 3. The extent of such authority and responsibilities is: **[Here provide the extent].**

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.13 *Owner's Site Representative*

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 ***Owner's Site Representative***

- A. Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not Engineer's consultant, agent, or employee. Owner's Site Representative will be **[here identify individual or entity]**. The authority and responsibilities of Owner's Site Representative follow: **[Here describe the duties and activities of the Owner's Site Representative.]**

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

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

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 3. *Liaison*
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
 6. *Payment Requests:* Review Applications for Payment with Contractor.
 7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.

- b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

SC-11.02.C – Add new paragraph immediately after Paragraph 11.02.B:

C. The Engineer or Owner shall contact the Agency for concurrence on each Change Order prior to issuance. All Contract Change Orders must be concurred on (signed) by Agency before they are effective.

SC-11.03.A.2 - Add new Paragraph 11.03.A.2 immediately after Paragraph 11.03.A, which shall be renamed Paragraph 11.03.A.1:

2. The Engineer or Owner shall contact the Agency for concurrence on each Work Change Directive prior to issuance. Once authorized by Owner, a copy of each Work Change Directive shall be provided by Engineer to the Agency.

SC-11.05.B – Add the following at the end of this paragraph:

For Owner-authorized changes in the Work, the Contractor will provide the Manufacturer's Certification(s) for materials subject to American Iron and Steel requirements except when sole-source is specified, in which case the Engineer will provide the Manufacturer's Certification(s).

SC-11.09.B.2.c – Add new paragraph immediately after Paragraph 11.09.B.2.b:

c. Change orders involving materials subject to American Iron and Steel requirements shall include supporting data (name of Manufacturer, city and state where the product was manufactured, description of product, signature of authorized Manufacturer's representative) in the Manufacturer's Certification Letter, as applicable.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.01 *Cost of the Work*

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of **[name of equipment rental rate book]**.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500. **[or insert other threshold price.]**

SC-13.02.C – Delete paragraph in its entirety and insert "Deleted".

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to [number] percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than [number] percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

SC-14.03.G – Add new paragraph immediately after Paragraph 14.03.F:

G. Installation of materials that are non-compliant with American Iron and Steel requirements shall be considered defective work.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

SC-15.01.B.4 – Add the following language at the end of paragraph:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage or invest the retainage for the benefit of the Contractor.

SC-15.01.B.5 – Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620. The Agency must approve all Applications for Payment before payment is made.

SC-15.01.B.6 – Add new paragraph immediately after Paragraph 15.01.B.5:

6. By submitting an Application for Payment based in whole or in part on furnishing equipment or materials, Contractor certifies that such equipment and materials are compliant with American Iron and Steel requirements. Manufacturer's Certification letter for materials satisfy this requirement. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC-15.01.C.2.d – Add the following new paragraph immediately after Paragraph 15.01.C.2.c:

d. The materials presented for payment in an Application for Payment comply with American Iron and Steel requirements.

SC-15.01.D.1 – Delete paragraph in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the

provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

SC-15.02.A – Amend paragraph by striking out the following text: “7 days after”.

15.03 *Substantial Completion*

SC-15.03.A – Modify by adding the following after the last sentence:

Contractor shall also submit the General (Prime) Contractor’s Certification of Compliance certifying that to the best of the Contractor’s knowledge and belief all substitutes, equals, and all Iron and Steel products proposed in the Shop Drawings, Change Orders, and Partial Payment Estimates, and those installed for the Project, are either Produced in the United States or are the subject of an approved waiver under Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference.

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

15.08 *Correction Period*

SC-15.08 Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be **[number]** years after Substantial Completion.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 *Arbitration*

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 *Arbitration*

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.

- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 Attorneys' Fees

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

17.03 Attorneys' Fees

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18—MISCELLANEOUS

18.08 Assignment of Contract

SC-18.08 Add the following new paragraph immediately after Paragraph 18.08.A:

- B. The contract dated **[date]** between Owner as "buyer" and **[identify seller]** as "seller" for procurement of goods and special services ("procurement contract") **[is hereby] [will be]**

assigned to Contractor by Owner, and Contractor **[accepts] [will accept]** such assignment. A form documenting the assignment is attached as an exhibit to this Contract.

1. This assignment will occur on the **[Effective Date of the Contract]**, and will relieve the Owner as “buyer” from all further obligations and liabilities under the procurement contract.
2. Upon assignment, the “seller” will be a Subcontractor or Supplier of the Contractor, and Contractor will be responsible for seller’s performance, acts, and omissions, as set forth in Paragraph 7.07 of the General Conditions just as Contractor is responsible for all other Subcontractors and Suppliers.
3. Notwithstanding this assignment, all performance guarantees and warranties required by the procurement contract will continue to run for the benefit of the Owner and, in addition, for the benefit of the Contractor.
4. Except as noted in the procurement contract, all rights, duties and obligations of Engineer to “buyer” and “seller” under the procurement contract will cease **[upon the assignment to Contractor]**.

SC-18.11 – Add new paragraph immediately after Paragraph 18.10:

18.11 *Tribal Sovereignty*

A. No provision of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of the *[insert name of Tribe]* Tribe; affecting the trust-beneficiary relationship between the Secretary of the Interior, Tribe, and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC-19 – Add the following new Article 19 immediately after Article 18:

Article 19 - FEDERAL REQUIREMENTS

19.01 *Agency Not a Party*

A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees, is a party to this Contract.

19.02 *Contract Approval*

A. Owner and Contractor will furnish Owner’s attorney such evidence as required so that Owner’s attorney can complete and execute the “Certificate of Owner’s Attorney” (Exhibit G of this Bulletin) before Owner submits the executed Contract Documents to Agency for approval.

B. Agency concurrence is required on both the Bid and the Contract before the Contract is effective.

19.03 *Conflict of Interest*

A. Contractor may not knowingly contract with a Supplier or Manufacturer if the individual or entity who prepared the Drawings and Specifications has a corporate or financial affiliation with the Supplier or Manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest or other interest in or a tangible personal benefit from the Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

19.04 *Gratuities*

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

19.05 *Small, Minority and Women's Businesses*

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor will take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps will include:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

19.06 *Anti-Kickback*

A. Contractor shall comply with the Copeland Anti-Kickback Act (40 USC 3145) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

19.07 *Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended*

A. Contractor to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

19.08 *Equal Employment Opportunity*

A. The Contract is considered a federally assisted construction contract. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

19.09 *Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)*

A. Contractors that apply or bid for an award exceeding \$100,000 must file the required certification (RD Instruction 1940-Q Exhibit A-1). The Contractor certifies to the Owner and

every subcontractor certifies to the Contractor that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining the Contract if it is covered by 31 U.S.C. 1352. The Contractor and every subcontractor must also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

19.10 Environmental Requirements

A. When constructing a Project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental conditions:

1. Wetlands – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

2. Floodplains – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey Maps.

3. Historic Preservation - Applicants shall ensure that Contractors maintain a copy of the following inadvertent discovery plan onsite for review:

a. If during the course of any ground disturbance related to any Project, any post review discovery, including but not limited to, any artifacts, foundations, or other indications of past human occupation of the area are uncovered, shall be protected by complying with 36 CFR § 800.13(b)(3) and (c) and shall include the following:

i. All Work, including vehicular traffic, shall immediately stop within a 50 ft. radius around the area of discovery. The Contractor shall ensure barriers are established to protect the area of discovery and notify the Engineer to contact the appropriate RD personnel. The Engineer shall engage a Secretary of the Interior (SOI) qualified professional archeologist to quickly assess the nature and scope of the discovery; implement interim measures to protect the discovery from looting and vandalism; and establish broader barriers if further historic and/or precontact properties, can reasonably be expected to occur.

ii. The RD personnel shall notify the appropriate RD environmental staff member, the Federal Preservation Officer (FPO), and State Historic Preservation Office (SHPO) immediately. Indian tribe(s) or Native Hawaiian Organization (NHOs) that have an interest in the area of discovery shall be

contacted immediately. The SHPO may require additional tribes or NHOs who may have an interest in the area of discovery also be contacted. The notification shall include an assessment of the discovery provided by the SOI qualified professional archeologist.

iii. When the discovery contains burial sites or human remains, the Contractor shall immediately notify the appropriate RD personnel who will contact the RD environmental staff member, FPO, and the SHPO. The relevant law enforcement authorities shall be immediately contacted by onsite personnel to reduce delay times, in accordance with tribal, state, or local laws including 36 CFR Part 800.13; 43 CFR Part 10, Subpart B; and the Advisory Council on Historic Preservation's Policy Statement Regarding treatment of Burial Sites, Human Remains, or Funerary Objects (February 23, 2007).

iv. When the discovery contains burial sites or human remains, all construction activities, including vehicular traffic shall stop within a 100 ft. radius of the discovery and barriers shall be established. The evaluation of human remains shall be conducted at the site of discovery by a SOI qualified professional. Remains that have been removed from their primary context and where that context may be in question may be retained in a secure location, pending further decisions on treatment and disposition. RD may expand this radius based on the SOI professional's assessment of the discovery and establish broader barriers if further subsurface burial sites, or human remains can reasonably be expected to occur. RD, in consultation with the SHPO and interested tribes or NHOs, shall develop a plan for the treatment of native human remains.

v. Work may continue in other areas of the undertaking where no historic properties, burial sites, or human remains are present. If the inadvertent discovery appears to be a consequence of illegal activity such as looting, the onsite personnel shall contact the appropriate legal authorities immediately if the landowner has not already done so.

vi. Work may not resume in the area of the discovery until a notice to proceed has been issued by RD. RD shall not issue the notice to proceed until it has determined that the appropriate local protocols and consulting parties have been consulted.

vii. Inadvertent discoveries on federal and tribal land shall follow the processes required by the federal or tribal entity.

4. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered

and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

5. Mitigation Measures – The following environmental mitigation measures are required on this Project: *[Insert mitigation measures from the Letter of Conditions here]*.

19.11 *Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)*

A. Where applicable, for contracts awarded by the Owner in excess of \$100,000 that involve the employment of mechanics or laborers, the Contractor will comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, the Contractor will compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic will be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

19.12 *Debarment and Suspension (Executive Orders 12549 and 12689)*

A. A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

19.13 *Procurement of recovered materials*

A. The Contractor will comply with 2 CFR Part 200.322, “Procurement of recovered materials.”

19.14 *American Iron and Steel*

A. Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference

applies an American Iron and Steel requirement to this project. All iron and steel products used in this project must be produced in the United States. The term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and Construction Materials.

B. The following waivers apply to this Contract:

1. *De Minimis,*
2. *Minor Components,*
3. *Pig iron and direct reduced iron, and*
4. *[add project specific waivers as applicable].*

EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contractors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version [number] or later			
DWG	Autodesk® AutoCAD .dwg format Version [number]			
DOC	Microsoft® Word .docx format Version [number]			
EXC	Microsoft® Excel .xls or .xml format Version [number]			
DB	Microsoft® Access .mdb format Version [number]			

EXHIBIT B—FORESEEABLE BAD WEATHER DAYS

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Notes: 1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.			

EXHIBIT C—GEOTECHNICAL BASELINE REPORT SUPPLEMENT TO THE SUPPLEMENTARY CONDITIONS

1.01 *Definitions*

SC-1.01 Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

1. *Geotechnical Baseline Report (GBR)*—The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.
2. *Geotechnical Data Report (GDR)*—The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

5.03 *Subsurface and Physical Conditions*

SC-5.03 Delete Paragraph 5.03 in its entirety and replace with the following:

5.03 *Subsurface and Physical Conditions*

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

1. those reports of explorations and tests of subsurface conditions at or adjacent to the Site (other than any Geotechnical Data Report or Geotechnical Baseline Report) that contain Technical Data. Such reports are as follows:
 - a. *Report Title*: Sauk County Farm Ed. Hub – Reedsburg WI – Geotechnical Report
 - b. *Date of Report*: August 9, 2023
 - c. *Technical Data in report upon which Contractor may rely*: Boring log pages 19-26
2. those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data. Such drawings are as follows:
 - a. *Drawings Title*: **None**
 - b. *Date of Drawings*: **NA**
 - c. *Technical Data in drawings upon which Contractor may rely*: Geotechnical Report

3. Contractor may examine copies of reports and drawings identified immediately above that were not included with the Bidding Documents at **[location]** during regular business hours, or may request copies from Engineer, at the cost of reproduction.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph SC-5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.
- E. *Geotechnical Baseline Report*
1. This Contract contains a Geotechnical Baseline Report ("GBR"), identified as follows: Geotechnical Engineering Exploration and Analysis, dated August 09, 2023, prepared by Giles Engineering Associates, INC. This Contract also contains a Geotechnical Data Report (GDR), identified as follows: Geotechnical Engineering Exploration and Analysis, dated August 09, 2023, prepared by Giles Engineering Associates, INC.
 2. The GBR and GDR are incorporated as Contract Documents. The GBR and GDR are to be used in conjunction with other Contract Documents, including the Drawings and Specifications. If there is a conflict between the terms of the GBR and the GDR, the GBR's terms prevail.
 3. The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (referred to here in the Supplementary Conditions as "Baseline Conditions"). These may include ground,

geological, groundwater, and other subsurface geotechnical conditions, and baselines of anticipated Underground Facilities or subsurface structures.

4. The Baseline Conditions will be used to assist in the administration of the Contract's differing site conditions clause at locations where subsurface conditions have been baselined. If a condition is baselined in the GBR, then only the pertinent Baseline Conditions will be used to determine whether there is a differing site condition; and no other indication of that condition in the Contract Documents or Technical Data, or of a condition that describes, quantifies, or measures a similar characteristic of the subsurface, will be used for the differing site condition determination.
5. The Baseline Conditions will not be used to make differing site conditions determinations at locations that have not been baselined in the GBR, or at any location with respect to subsurface conditions that the Baseline Conditions do not address. If Underground Facilities or Hazardous Environmental Conditions are expressly addressed in the Baseline Conditions, then comparison to such Baseline Conditions will be the primary means of determining (a) whether an Underground Facility was shown or indicated with reasonable accuracy, as provided in Paragraph 5.05 of the General Conditions, or (b) whether a Hazardous Environmental Condition was shown or indicated in the Contract Documents as indicated in Paragraph 5.06.H of the General Conditions. As indicated in Paragraph SC-5.04 below, the GDR will be the primary resource for differing site conditions determinations in cases in which the GBR is inapplicable.
6. The descriptions of subsurface conditions provided in the GBR are based on geotechnical investigations, laboratory tests, interpretation, interpolation, extrapolation, and analyses. Neither Owner, Engineer, nor any geotechnical or other consultant warrants or guarantees that actual subsurface conditions will be as described in the GBR, nor is the GBR intended to warrant or guarantee the use of specific means or methods of construction.
7. The behavior of the ground during construction depends substantially upon the Contractor's selected means, methods, techniques, sequences, and procedures of construction. If ground behavior conditions are baselined in the GBR, they are based on stated assumptions regarding construction means and methods.
8. The GBR will not reduce or relieve Contractor of its responsibility for the planning, selection, and implementation of safety precautions and programs incident to Contractor's means, methods, techniques, sequences, and procedures of construction, or to the Work.

5.04 *Differing Subsurface or Physical Conditions*

SC-5.04 Delete Paragraph 5.04 in its entirety and replace with the following:

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface condition that is uncovered or revealed at the Site:
 1. differs materially from conditions shown or indicated in the GBR; or

2. differs materially from conditions shown or indicated in the GDR, to the extent the GBR is inapplicable; or
3. differs materially from conditions shown or indicated in Contract Documents other than the GBR or GDR, to the extent the GBR and GDR are inapplicable; or
4. to the extent the GBR and GDR are inapplicable, is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
5. to the extent the GBR and GDR are inapplicable, is of such a nature as to require a change in the Drawings or Specifications; or
6. to the extent the GBR and GDR are inapplicable, is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph SC-5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption or continuation of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption or continuation of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph SC-5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03 of the General Conditions; and
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph SC-5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment must be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 of the General Conditions governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 of the General Conditions governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs SC-5.03 and SC-5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner:	Sauk County	Owner's Project No.:
Engineer:	Snyder & Associates	Engineer's Project No.:123.0424.30
Contractor:		Contractor's Project No.:
Project:		
Contract Name:		
Date Issued:		Effective Date of Work Change Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

Recommended by Engineer

Authorized by Owner

By:

Title:

Date:

CHANGE ORDER NO.: [Number of Change Order]

Owner:	Sauk County	Owner's Project No.:	
Engineer:	Snyder & Associates	Engineer's Project No.:	123.0424.30
Contractor:		Contractor's Project No.:	
Project:			
Contract Name:			
Date Issued:		Effective Date of Change Order:	

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments:

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. _____ \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Accepted by Contractor

By: _____

Title: _____

Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

By: _____

Title: _____

Date:

FIELD ORDER NO.: [Number of Field Order]

Owner:	Sauk County	Owner's Project No.:	
Engineer:	Snyder & Associates	Engineer's Project No.:	123.0424.30
Contractor:		Contractor's Project No.:	
Project:			
Contract Name:			
Date Issued:		Effective Date of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

Attachments:

Issued by Engineer

By: _____

Title: _____

Date: _____

SECTION 01 22 00 - MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Measurement and payment criteria applicable to the Work performed under a unit price payment method. Defect assessment and non-payment for rejected work.

1.02 AUTHORITY

- A. Measurement methods delineated within the individual specification sections or within the Bid Form are intended to compliment the criteria of this section. In the event of conflict, the requirements of the individual specification section or Bid Form shall govern. The Engineer will verify all quantities.

1.03 UNIT QUANTITIES

- A. Quantities indicated within the Bid Form are for bidding and contract purposes only. Quantities supplied or placed in the Work and verified by the Engineer shall determine payment. If the actual work requires greater or fewer quantities than indicated within the Bid Form, provide the actual quantities at the contract unit prices.

1.04 MEASUREMENT OF QUANTITIES

- A. Measurement by volume: Measured by cubic dimension using length, width, and height or thickness. Measurement by area: Measured by square dimension using length and width.
- B. Measurement by length: Measured by linear dimension along the centerline.
- C. Measurement by weight: Measured by weight with a scale.
- D. Measurement by unit: Measured by completed item.

1.05 MEASUREMENT AND PAYMENT

1. Bid Item – Mobilization: Payment will be made at the contract lump sum price and shall include all labor and equipment necessary to access the site with equipment, material, and labor. Can be paid as a partial unit.
2. Bid Item – Clearing and Grubbing: Payment will be made at the contract lump sum price and shall include all labor and equipment necessary to remove trees and grub as called out on the plans and project specifications.
3. Bid Item – Removals – Poles, Manholes, Culvert, Concrete and asphalt path, existing entry and gravel shoulder cut: Payment will be made at the contract lump sum price and shall include all equipment, material, and labor necessary to remove all items shown on the plans and their proper containment, reuse and or removal as necessary. This item also includes permits and fees for proper disposal of items.
4. Bid Item – Top Soil Strip, Stockpile, & Repurpose: Payment will be made at the contract lump sum price and shall include equipment and labor to strip all topsoil on the site and stockpile with the adequate erosion control. Price shall include reapplying topsoil.
5. Bid Item – Unclassified Excavation: Payment will be made at the contract lump sum price and shall include all material, equipment, and labor to excavate, cut, fill, load, haul in, haul out, compact, and other all earthworking activities to grade the site to the proposed contours as shown on the plans while following the project specifications. This price includes any borrow or cutting activities to bring

the site into the proposed elevations. This also includes all grading activities to install the at grade garden paths, roads, stormwater pond, and all other features on the site.

6. Bid Item – Fine Grading: Payment will be made at the contract lump sum price and shall include all labor and equipment necessary to smooth out, shape the road to a 2% crown, water, and compact the pulverized existing aggregate base course within the project limits as described on the plans and in the project specifications.
7. Bid Item – 1 ¼" Aggregate Base Course: Payment will be made at the contract bid price and shall include all material, equipment, and labor to install the aggregate as called out on the roadways, parking lots, and all other areas on the plan.
8. Bid Item – Pulverization (Existing Roads and Parking): Payment will be made at the contract bid price and shall include all equipment and labor to pulverize the existing roadways and parking lot as called out on the plans.
9. Bid Item – Concrete at 5" Depth: Payment shall be made at the contract bid price per square foot and shall include all labor, equipment, and materials necessary to install the concrete pavement per the plans and specifications. Price includes testing, reinforcement, and jointing.
10. Bid Item – Concrete at 8" Depth: Payment shall be made at the contract bid price per square foot and shall include all labor, equipment, and materials necessary to install the concrete pavement per the plans and specifications. Price includes testing, reinforcement, and jointing.
11. Bid item – Asphalt Entry Way 4" Thick: Payment shall be made at the contract bid price per ton and include all labor, equipment, and materials necessary to install the hot mix asphalt per the plans and specifications.
12. Bid Item – 2" Gravel Overlay
13. Bid Item – Pavement Markings: Payment shall be made at the contract lump sum price and shall include all labor, equipment, and materials necessary to paint the markings as shown on the plans.
14. Bid Item – Electrical Circuits (Conduit and Wiring): Payment shall be made at the contract unit price per linear foot and shall include all labor and materials necessary to install conduit, wiring, trenching, backfilling and compaction.
15. Bid Item – Electrical Transformer: Payment shall be made at the contract unit price per each transformer and shall include all labor, equipment, and materials necessary to install a concrete base and electrical transformer.
16. Bid Item – GFCI Outlet: Payment shall be made at the contract unit price per each GFCI and shall include all labor and necessary materials to install conduit and wiring.
17. Bid Item – Street Light with Concrete Base: Payment shall be made at the contract unit price per each street light and concrete base and shall include all labor necessary to install the base footing and light fixture.

18. Bid Item – Water Lateral at 1 ½ (includes hose bibs)": Payment shall be made at the contract unit price per linear foot and include all labor, material, and equipment necessary to trench, install, and recompact fill material at water later line. Bid item includes all hose bibs and necessary services for future connections to building and shelter.
19. Bid Item – 6" PVC Underdrain with Observation Port: Payment shall be made at the contract unit price per linear foot and include all labor, material, and equipment . Also includes the installation and construction of the observation port per the project plans.
20. Bid Item – 12" RCP Storm Sewer: Payment shall be made at the contract unit price per linear feet and shall include all equipment, labor and necessary materials to install the storm sewer per the plans and specifications. Price includes trench backfill and compaction per the plans and specifications.
21. Bid Item – 15" RCP Storm Sewer: Payment shall be made at the contract unit price per linear feet and shall include all equipment, labor and necessary materials to install the storm sewer per the plans and specifications. Price includes trench backfill and compaction per the plans and specifications
22. Bid Item – 18" RCP Storm Sewer: Payment shall be made at the contract unit price per linear feet and shall include all equipment, labor and necessary materials to install the storm sewer per the plans and specifications. Price includes trench backfill and compaction per the plans and specifications
23. Bid Item – Pond Outlet Structure: Payment shall be made at the contract lump sum price and shall include all equipment, labor and necessary materials to provide and install the outlet structure per the plans and specifications.
24. Bid Item – Apron Endwall 12": Payment shall be made at the contract unit price per each endwall and shall include all equipment, labor and necessary materials to install the endwalls per the plans and specifications.
25. Bid Item – Apron Endwall 15": Payment shall be made at the contract unit price per each endwall and shall include all equipment, labor and necessary materials to install the endwalls per the plans and specifications.
26. Bid Item – Apron Endwall 18": Payment shall be made at the contract unit price per each endwall and shall include all equipment, labor and necessary materials to install the endwalls per the plans and specifications.
27. Bid Item – Stone Construction Entrance: Payment shall be made at the contract unit price and shall include all equipment, labor and necessary materials to install a stone construction entrance per the plans and specifications. Price also includes maintenance of the stone construction entrance throughout the life of the project.

28. Bid Item – Silt Fence: Payment shall be made at the contract unit price and shall include all equipment, labor, and material to install the silt fence per the plans and specifications. Price shall include removal of the silt fence once vegetative establishment has been completed.
29. Bid Item – Rip Rap: Payment shall be made at the contract unit price and shall include all equipment, labor, and material to install rip rap at locations shown on plan.
30. Bid Item - Sediment Logs: Payment shall be made at the contract unit price and shall include all equipment, labor, and material to install the sediment logs per the plans and specifications. Price shall include removal of the sediment logs once vegetative establishment has been completed.
31. Bid Item – Erosion Mat: Payment shall be made at the contract unit price and shall include all equipment, labor, and material to install the erosion mat per the plans and specifications.
32. Bid Item – Concrete washout: Payment shall be made at the contract unit price and shall include all necessary equipment, labor, and materials necessary for the temporary installation of a concrete washout area.
33. Bid Item – Entry Monumentation: Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, erect and install the monument per the details in the plan. Lump sum price shall include coordination, fabrication, and installation of monument metal lettering, metal pinecone structure and the necessary concrete footing and its structural approval by an engineer, and the stone wall as shown on the details and plan.
34. Bid Item – Relocate existing sign: Payment shall be made per contract unit price for the removal and relocation of existing site signs.
35. Bid Item – Stabilized Pathway: Payment shall be made at the contract unit price as measured by square feet and shall include all equipment, material, and labor necessary to excavate existing soil, install gravel base, geotextile fabric, stabilized material and necessary compaction.
36. Bid Item – Shelter 24' x 36': Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, erect and install a dimensional lumber framed shelter with metal roof and metal wood fasteners and bracing. Price to include all engineering permits and approval of the structure.
37. Bid Item – Bathroom Screening Structure: Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, erect and install a cedar wood construction screening structure. Lump sum price includes all necessary fasteners.
38. Bid Item – ADA Compliant Porta Potty: Payment shall be made at the contract unit price per each ADA compliant porta potty and shall include all necessary labor, material, delivery and installation.
39. Bid Item – Interpretive Exhibit: Payment shall be made at the contract unit price per each Interpretive exhibit and shall include all necessary labor, material, delivery and installation.

40. Bid Item – Deer Fence at 8' and Gates at 10'[and 12' widths: Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, erect and install a treated wood fence with metal mesh and metal gates. Lump sum price includes all necessary fasteners and concrete footers and compacted gravel subbase.
41. Bid Item – ADA Compliant Raised Planters: Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, erect and install wood planters.
42. Bid Item – Landscape Boulders: Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver and install free standing landscape boulders.
43. Bid Item – Trees (bareroot and deer protection): Payment shall be made at the contract unit price as measured by lump and shall include all equipment, material, and labor necessary to deliver, and install bareroot trees with deer protection as indicated on the plans and details.
44. Bid Item – Tree Transplant: Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to transplant and install transplanted trees. Damaged trees shall be replaced with equal caliper tree.
45. Bid Item – Prairie Plants at 4" Plug: Bid Item will be measured by completed unit and shall include all labor, materials, and equipment necessary to install 4" potted plants.
46. Bid Item – Community Garden Soil: Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to install compost at 3" depth.
47. Bid Item – Turf Seed: Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to install topsoil, seeding, and erosion mat. Turf grass areas shall be repaired if damaged during construction.
48. Bid Item – Prairie Seed Mix and Oak Savanna Seed Mix : Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to install topsoil, seeding, and erosion mat. Native seed areas shall be repaired if damaged during construction.
49. Bid Item – No Mow Seed: Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to install topsoil, seeding, and erosion mat. No mow seed areas shall be repaired if damaged during construction.
50. Bid Item – Bio Plugs: Bid Item will be measured by completed unit and shall include all include all labor, materials, and equipment necessary to install plugs. Bio plug areas shall be repaired if damaged during construction.
51. Bid Item – Coconut Mat: Bid item will be measured by unit and shall include all labor, materials, and equipment necessary to install mating per the details and specifications.
52. Bid Item – Geotextile Fabric: Bid item will be measured by unit and shall include all labor, materials, and equipment necessary to install fabric per details and specifications.

53. Bid Item – Engineered Soil: Bid item will be measured by unit and shall include all labor, materials, and equipment necessary to excavate and install engineered soil per details and specifications.
54. Bid Item – Rock Fill: Bid item will be measured by unit and shall include all labor, materials, and equipment necessary to excavate and install rock fill per details and specifications.

Bid Alternate 1:

1. Existing well abandonment and New Well: Bid item is measured by lump sum unit price and shall include all labor, material, and equipment necessary to abandon the site's existing well and site consultation of new well location, drilling, casing, sealing, developing (cleaning), installing of new well pump, and final water testing. Price to include the necessary geotechnical investigation for the well and any permitting fees associated with the abandonment and installation of the new well.

1.06 DEFECT ASSESSMENT

- A. Replace the work, or portions of the Work, not conforming to the specified requirements. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies.
1. The defective Work may remain, but the unit sum/price will be adjusted to a new sum/price, at the discretion of the Engineer.
 2. The defective Work will be partially repaired to the instruction of the Engineer, and the unit sum/price adjusted to a new sum/price, at the discretion of the Engineer.
- B. The individual specification sections may modify these remedies. The authority of the Engineer to assess the defect and identify payment adjustments, is final.

1.07 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Product: Any natural, processed, manufactured, or fabricated material incorporated into the Work. Payment will not be made for any of the following:
1. Products wasted.
 2. Products determined to be unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products placed beyond the lines and levels required for the Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities and miscellaneous temporary facilities required during construction. The work on this section shall be provided as it applies.

1.02 REFERENCES

- A. As a minimum, the provisions of the Wisconsin Department of Transportation (WisDOT) Standard Specifications for Highway and Structure Construction, latest edition, and Wisconsin State Manual for Uniform Traffic Control Devices shall be met. All traffic control procedures shall be subject to the approval of the Engineer.

1.03 SUBMITTALS

- A. Submit Traffic Management and Control Plan. Plan shall include the following information:
 - 1. Traffic control measures.
 - 2. Permits or applications required by local authorities.
 - 3. Temporary facilities required.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 MOBILIZATION

- A. Move personnel, equipment, materials, and all other items required to complete the work at the Project Site.
- B. Temporarily hold or relocate utilities and any miscellaneous structures, such as signs, power poles, guy wires, and mailboxes disturbed.

3.02 TEMPORARY UTILITIES

- A. Provide and maintain all temporary facilities, utilities, and controls as long as needed for the safe and proper completion of the work. Remove all temporary facilities, utilities, and controls as rapidly as progress will permit or as directed by Engineer.
- B. Temporary Water for Construction:
 - 1. Contractor must obtain water for construction from the County. Contractor shall obtain all water for County DPW unless agreed to by Owner so water can be metered. Contractor shall not obtain water from fire hydrants without prior approval. Contractor shall coordinate obtaining after hours water for construction with the County.

3.03 CONSTRUCTION FACILITIES

- A. Sanitary Facilities:
 - 1. Comply with all governing regulations, including safety and health codes for sanitary fixtures and facilities.
 - 2. Provide self-contained toilet units, or water and sewer connected temporary toilet facilities consistent with governing regulations. Contractor may not use Owner's toilet facilities.
 - 3. Provide and maintain adequate supply of toilet tissue, paper towels, paper cups, and similar disposable materials appropriate for each facility. Provide appropriate covered waste containers for used material.

3.04 DEWATERING

- A. Pumping and Dewatering:
 - 1. Provide draining, pumping, dewatering, and cleaning operations necessary to complete the work.
 - 2. Provide all necessary pumping to remove all surface water and groundwater from structures as required for the work. Provide erosion control measures for discharge of water. Dewatering cannot exceed 70 gallons/minute without a permit.
 - 3. Discharge of dewatering activities must be to an existing drainage facility with proper erosion and sediment controls.
 - 4. Protect Project Site and adjacent property to avoid damage.

5. If dewatering is required, the Contractor must contact the Wisconsin Department of Natural Resources' Private Water Supply Section for required permits for all wells installed or operated for which the single or aggregate capacity is in excess of 70 gallons per minute at the address below:

Wisconsin Department of Natural Resources
Private Water Supply Section
Box 7921
Madison, Wisconsin 53707

Additionally, if dewatering is required, the Contractor must contact the Registry of Waste Disposal Sites in Wisconsin, the Leaking Underground Storage Tank Site List, the Annual Spills Report and Sauk County to determine if any adjacent operating or abandoned sanitary landfills, leaking underground storage tanks or hazardous substance spills exist.

The Contractor shall contact the Wisconsin Department of Natural Resources' Solid Waste Coordinator for assistance prior to installing the dewatering wells for the site. This work shall be incidental to the cost of the project.

3.05 TRAFFIC CONTROL

- A. Provide and maintain all traffic control devices needed to guide, warn, control, and protect traffic throughout the Project Site. All traffic control devices and other protective measures shall conform to State of Wisconsin DOT codes and requirements.
- B. Remove traffic control devices at the conclusion of the work.
- C. Traffic control shall be the responsibility of the Contractor.
- D. The Contractor shall be responsible for the erection and maintenance of all barricades, lights, and signs necessary for public safety and convenience in accordance with all applicable requirements. In general, all hazards within the limits of the work or on detour around the work must be marked with well-painted, well-maintained barricades, reflectors, electric lights, flashers, and warning and directional signs in sufficient quantity and size adequate to protect life and property. These safe-guards shall be moved, changed, increased, or removed as required during the progress of the work to meet changing conditions.
- E. Field Quality Control:
 1. Daily inspect and insure that all traffic control devices required by the construction are in accordance with the Manual on Uniform Traffic Control Devices for streets and highways latest edition (MUTCD), and Wisconsin DOT codes and requirements. Any discrepancy between the actual devices in use and the required devices shall be immediately rectified.
 2. Furnish name, address, and phone number of one (1) individual who shall be "on call" 24 hours per day, 7 days per week during the time any traffic control devices furnished and installed by the Contractor are in place.
 3. Provide access for emergency vehicles, waste management vehicles, and busses to all public users at all times as it applies.
 4. Respond to any request from the Engineer to improve or correct the usage of traffic control devices on or related to this Project within 1 hour of the time of notification.

5. Keep all traffic control signs and devices in a legible condition. This shall include but not be limited to removing snow, grime, and dust deposited on any device by traffic, natural causes, or when requested by Engineer.
6. Upon completion of the work, the entire site will be finished in a first class condition. Street damage repaired, and any damage to walks, curbs, and drives repaired. Drives and walks cleaned of any mud and debris. The work will be done by the Contractor whose division of work it falls under at no additional cost to the Owner.
7. The Contractor shall be responsible for all damage resulting from his work operations to any utilities or private property. He shall also be responsible for damage to pavement, sidewalks, curbs, gutters, trees, shrubbery, or lawns which are scheduled to remain.

3.06 CONSTRUCTION AND DEMOLITION DEBRIS

- A. The Contractor shall at all time keep the site, including all private or public property involved in or adjacent to the site, free from any rubbish, surplus, or waste materials.
- B. The Contractor shall remove all surplus materials, tools, and equipment leaving the site and all portions of the finished work clean, unobstructed and ready for use before Final Completion will be granted. After written notification, the Owner may remove all rubbish, surplus, or waste materials which the Contractor has neglected or refused to remove from the site and deduct the costs of such removal from any monies due the Contractor.
- C. The Owner or its Representative shall have the right to regulate the work in order to control objectionable dust, mud, or other nuisances in or adjacent to the area of the site.
- D. The Contractor must arrange for a disposal site for all debris and rubble which is to be removed from the site.
- E. Contractor's costs for disposal of material shall be included in Contractor's bid price for the various items of this Contract and no extra or additional payment shall be made for this work.

3.07 STREET AND RIGHT-OF-WAY USE

- A. Contractor shall be responsible to keep all streets, drives, and parking lots in the area free of mud, clay, gravel, and other materials which vehicles or equipment may track or scatter onto them, or which may be deposited by uncontrolled drainage of water directly onto streets or drives.
- B. Frequency of cleaning shall be based upon amount of material deposited, not necessarily done on a fixed schedule.
- C. Contractor failure to comply with these requirements within twenty-four hours after being given notice by the Owner will result in the Owner having streets cleaned and deducting costs from amount due Contractor.
- D. Vehicles and equipment shall not be flushed out or dumped onto any streets, drives, walks, gutters, or on grounds of any private property.
- E. Contractor shall maintain dust-free roadways at all times. Roadway surfaces shall be kept watered.
- F. Contractor shall not store material in the roadway right of way.

3.08 MEASUREMENT AND PAYMENT

- A. All work and costs of this section shall be incidental to the Project and included in the bid.

END OF SECTION

SECTION 01 55 26 - TRAFFIC CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Construction Staging and Traffic Control Plan.

1.02 RELATED SECTIONS

- A. Conditions of the Contract, Supplemental Conditions of the Contract, and other Sections of Division 1 - General Requirements apply to this Section.

1.03 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - latest Edition and all current supplements (WisDOT Spec.)
- B. "Traffic Controls for Construction and Maintenance Operations," Part VI of the Wisconsin Manual on Uniform Traffic Control Devices (MUTCD) - latest edition.

1.04 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. All work and costs for traffic control shall be incidental to the Project and included in the bid. This includes all traffic control signs and devices furnished by the Contractor to complete the work associated with these specifications. This includes daily maintenance of all devices.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION TIME

- A. All work under this project shall be conducted between the hours of 7:00 A.M. and 6:00 P.M. Monday through Friday. No work will be permitted from the hours of 6:00 P.M. to 7:00 A.M. or at any time on Saturdays and Sundays except in the case of urgent necessity and then only with written permission from the Engineer.

3.02 TRAFFIC CONTROL

- A. The Contractor shall be responsible to furnish, install, and maintain in proper order all traffic control devices needed to guide, warn, control, and protect traffic throughout the Project Site. In general, all hazards within the limits of the work or on detour around the work must be marked with well-painted, well-maintained barricades, reflectors, electric lights, flashers, and warning and directional signs in sufficient quantity and size adequate to protect life and property. These safe- guards shall be moved, changed, increased, or removed as required during the progress of the work to meet changing conditions.
- B. All traffic control devices and other protective measures shall conform to Wisconsin MUTCD.
- C. Remove and dispose of all traffic control devices at the conclusion of the Project.
- D. Maintain traffic to public at all times.

3.03 RESTRICTION OF TRAFFIC

- A. Traffic shall be maintained on the roads in accordance with the provisions of WisDOT Spec. 643 and the following:
 - 1. One-way traffic shall be maintained on all areas for the duration of this Project.

3.04 SEQUENCE OF CONSTRUCTION AND TRAFFIC CONTROL

- A. Within 10 days following the approval of the Contract, the Contractor shall provide the Engineer with a planned sequence of construction and traffic control clearly outlining the sequence of operations, streets closed or restricted during any stage of construction, provisions for routing any detoured traffic as permitted, and specific signs and other traffic control devices to be utilized. All sequences of construction shall reflect the following conditions:
 - 1. The Contractor shall provide a method of protecting traffic from open excavation areas. All areas of excavation shall be backfilled at the end of each work day or protected by fence and barricades.
 - 2. The Contractor shall prosecute his work in a manner which will allow access to all areas within the Project by emergency medical services, fire and police departments, waste management vehicles, and snowplows. If the Contractor cannot maintain access to any property, he shall notify the Engineer as soon as possible prior to any work in that vicinity and no work shall commence that would impede access until the Engineer has given approval to proceed.
 - 3. The Engineer will determine the viability of any planned sequence revisions and may accept, reject, or suggest alterations to the planned sequence. The Contractor may not begin any construction operations without complete approval of the planned sequence of construction by the Engineer.
 - 4. The Contractor may request changes to the planned sequence of construction at any time. No change or deviation will be permitted without approval of the Engineer. All such requests shall be made in writing at least 7 days before the signing for this stage would be put into effect. No such change shall be implemented without the written

approval of the Project Engineer. The Engineer shall be contacted 24 hours prior to any changes in traffic control so he/she may oversee the changes.

3.05 MAINTENANCE

- A. The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices which become damaged, moved, or destroyed; of all lights which cease to function properly; and of all barricade weights which are damaged, destroyed, or otherwise fail to stabilize the barricades. The maintenance of the traffic control devices shall be the responsibility of the Contractor and shall be continuous throughout the term of the Contract, including periods of suspension.

3.06 FIELD QUALITY CONTROL

- A. Daily inspect and insure that all traffic control devices required by the construction are in accordance with the Manual on Uniform Traffic Control Devices for streets and highways latest edition (MUTCD), and Wisconsin DOT codes and requirements. Any discrepancy between the actual devices in use and the required devices shall be immediately rectified.
- B. Furnish name, address, and phone number of one individual who shall be "on call" 24 hours per day, 7 days per week during the time any traffic control devices furnished and installed by the Contractor are in place.
- C. Respond to any request from the Engineer to improve or correct the usage of traffic control devices on or related to this Project within one hour of the time of notification.
- D. Keep all traffic control signs and devices in a legible condition. This shall include but not be limited to removing snow, grime, and dust deposited on any device by traffic, natural causes, or when requested by Engineer.

END OF SECTION

SECTION 06 00 05 - SITE WOOD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cedar posts.
 - 2. Dimensional lumber.

1.3 DEFINITIONS

- A. Posts: Square wood members shall be called "posts" in the referenced standards and shall be pressure treated red cedar wood.
- B. Dimensional lumber: Any rectangular wood members shall be dimensional on all four sides as indicated in the Drawings or in approved Shop Drawings. All dimensional lumber shall be pressure treated red cedar wood.

1.4 SUBMITTALS

- A. Product Data for Review and Approval: For wood products and metal framing anchors.
 - 1. For pressure treated wood products, include manufacturer's written instructions for handling, storing, and installing.
 - 2. For metal framing anchors, include installation instructions and product type.
- B. Shop Drawings for Review and Approval: Provide shop drawings for Deer Fence and Bathroom Screening Structure.
- C. Samples for Review and Approval:
 - 1. Dimensional lumber: Not less than 24 inches long, showing the range of variation to be expected in appearance, including surface texture, of wood products.
 - 2. Cedar posts: Not less than 24 inches long, showing the range of variation to be expected in appearance, including surface texture of wood products.
- D. Material Certificates:
 - 1. For lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by ALSC's Board of Review.
 - 2. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.
- E. Certificates of Inspection: Issued by lumber grading agency for exposed wood products not marked with grade stamp.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials under cover and protected from weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 METAL USED IN WOOD STRUCTURES

- A. Welded wire mesh:
 - 1. Welded wire mesh for deer fencing by McNichols or approved alternative.
 - a. Manufacturer: McNichols
 - b. Phone: 1.877.884.4653
 - c. Website: <http://www.mcnichols.com/>
 - 2. Dimensions: As indicated in the Drawings.
- B. Metal Materials:
 - 1. All proposed metal materials to be specified in shop drawings provided by the fabricator for approval by the Project Manager.
- C. Metal finish:
 - 1. All steel and metal members, and wire mesh used shall be galvanized

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture. When able, dimensional lumber members shall be through-bolted to other dimensional lumber or posts as indicated in the Drawings. If using lag bolts, provide hardware in sufficient length, to penetrate not less than 2.5 (two and one half) inches into wood substrate or not less than $\frac{3}{4}$ the depth of the receiving wood substrate, whichever is less.
 - 1. Use stainless steel fasteners or steel fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or ASTM F 2329 unless otherwise indicated.
 - a. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
 - b. Carbon-Steel Bolts: ASTM A 307 (ASTM F 568M) with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers all hot-dip zinc coated.
 - c. Stainless-steel bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.3 METAL FRAMING HANGARS, ANCHORS, OR BRACKETS

- A. Basis-of-Design Products: Subject to compliance with City Code requirements, provide products indicated on Drawings or comparable products by one of the following (or approved equal):
 - 1. Simpson Strong-Tie Co., Inc.
 - 2. Cleveland Steel Specialty Co.
 - 3. Harlen Metal Products, Inc.
 - 4. KC Metals Products, Inc.
 - 5. Southeastern Metals Manufacturing Co., Inc.
 - 6. USP Structural Connectors.

- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer that meet or exceed those required by local code.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION, GENERAL

- A. Set exterior rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit exterior rough carpentry to other construction; scribe and cope as needed for accurate fit.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction" unless otherwise indicated.
- C. Install metal framing anchors to comply with manufacturer's written instructions and those indicated on plans and details.
- D. Do not splice structural members between supports unless otherwise indicated.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- F. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- G. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron (SBX) for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- H. Securely attach exterior rough carpentry work to substrate by anchoring and fastening as indicated, or complying with City code.
- I. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

END OF SECTION 060005

CLEARING AND GRUBBING - SECTION 31 11 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for stripping sod, and removing and disposing of vegetation, debris, rock, and boulders.

1.3 DEFINITIONS

- A. The term “sod stripping” shall be used when the vegetative material to be removed is mowable and generally less than twelve-inches (12”) tall.
- B. The term “tree removal” refers to individual woody plants with a caliper over four-inches (4”).
- C. The term “clearing” refers to removing and disposing trees, brush, stumps, logs, grass, weeds, roots, decayed vegetable matter, poles, stubs, rubbish, refuse dumps, sawdust piles, and loose boulders of one cubic yard (1 yd³) or less existing outside of the construction limits, debris resting on or protruding through the ground surface, or appearing on the construction limits before final acceptance of the work. Clearing also includes removing and disposing of obstructions, such as fences, bridges, buildings, and other incidental structures within the construction limits and shown on the Site Demolition Plans.
- D. The term “grubbing” refers to removal from the area within the construction limits and proper disposal of all objectionable matter defined above under clearing, which is embedded in the underlying soil. Grubbing also includes removing and properly disposing of sidewalks, driveways, catch basins, drop inlets, manholes, curbing, retaining walls, utilities, foundations, paved floors, underground tanks, and portions of plants to be removed that are below grade, and other structures within the construction limits.
- E. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.
- F. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow, and ; reasonably free of subsoil, clay lumps, gravel, and other objects more than two-inches (2”) in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.
- G. Plant-Protection Area: Area surrounding shrub beds or massings, or other vegetation or sensitive areas to be protected during construction, and indicated on Contract Drawings.
- H. Tree-Protection Area: Area surrounding individual trees or groups of trees to be protected during construction, see Division 01 Section “Tree Retention and Protection”.
- I. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

- A. All materials except for stripped topsoil, those materials indicated to remain or to be stockpiled, shall remain the property of the Village, all other materials shall be removed at the Contractor's expense.

1.5 SUBMITTALS

- A. Existing Conditions: Documentation of existing conditions, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or videotape.
 - 2. Include plans and notations to indicate specific damaged conditions of existing construction, site elements, and landscape.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions. Submit to Project Manager prior to start of construction.

1.6 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 Project Manager.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Project Manager.
- B. Improvements on Adjoining Property: Not allowed without prior approval from Project Manager. Work only within Work Limit Line as defined on drawings.
- C. Salvable Items: Carefully remove items indicated to be salvaged and store on Village property where indicated.
- D. Protection and Repair of Underground lines:
 - 1. Existing Public Utilities: Locate existing underground utilities within the limits of work per General Contract Conditions, Article 804 Protection of Municipal, Public Service or Public Utility Systems. Request utility locates seventy two (72) hours in advance of any excavations by calling the Digger Hotline at 1-800-424-8511. The contractor is responsible for providing written and graphical documentation from the utility owner. Take whatever precautions are necessary including potholing to verify location and depth to protect these underground lines from damage. Should unmarked or incorrectly marked utilities or other piping be encountered during excavation, notify the Project Manager immediately for direction. If damage does occur, all damage shall be repaired by the utility owner and all costs of such repair shall be paid by the contractor. Only written all clears will be acceptable, verbal all clears will not be accepted.
 - 2. Existing Private Utilities: Locate existing underground utilities within the limits of work. The contractor is required to contact all private utility companies including Village departments to locate all private utilities. The contractor is responsible for providing written and graphical documentation from the private utility owner. The request for locates shall be a minimum of seventy two (72) prior to proceeding with any excavation. If, after such requests, private utilities are encountered and damaged by the contractor these shall be repaired at no cost to the Village. If the contractor damages staked or located private utilities they shall be repaired by the utility owner and all costs of such

repair shall be paid by the contractor. Only written all clears will be acceptable, verbal all clears will not be accepted.

- E. Do not commence site clearing operations until temporary erosion- and sedimentation-control and tree and or plant protection measures are in place.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect existing site improvements to remain from damage during construction.
 - 1. Restore existing improvements damaged by Contractor during the work of this Contract to their original condition, as acceptable by Project Manager.

3.2 CLEARING

- A. Remove brush and vegetation from areas designated to be cleared. As directed by Project Manager, trim low hanging, unsound, or unsightly branches on existing trees and shrubs designated to remain.

3.3 GRUBBING

- A. Remove all stumps, roots, and debris a minimum of twelve-inches (12") below finish grade in all areas as required. Use hand methods for grubbing inside drip line of trees to remain. Backfill and compact stump and root holes to a maximum of eighty five percent (85%) in landscape areas and ninety five percent (95%) under hardscape.

3.4 TOPSOIL STRIPPING

- A. See Division 31 Section "Earth Moving".

3.5 SOD STRIPPING

- A. Strip sod in all areas to be re-graded to a depth of one-inch (1"), so that a relatively clean dirt surface remains.

3.6 TREE REMOVAL

- A. In all proposed landscaped areas, stumps and surface roots shall be ground to a minimum of twelve-inches (12") below finish grade. In proposed hardscape areas, all roots shall be removed entirely.

3.7 DISEASED TREE REMOVAL AND DISPOSAL

- A. The removal of diseased and infested trees includes the requirement of offsite burial of all parts of the trees immediately following removal. This includes logs, stumps, roots, branches and composted and un-composted chips. Under no circumstances should diseased or infected wood be left or taken for firewood, mulch or taken to a wood processing mill.

3.8 DISPOSAL

- A. Haul and dispose of all removed materials, trash, debris and waste materials legally outside of the Village's property. All recyclable materials shall be hauled to nearest recycling center and any non-recyclable materials shall be hauled to disposal sites.

END OF SECTION 31 11 00

SECTION 31 20 00 - EARTH MOVING

PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.
 - 1. Salvaging Topsoil
 - 2. Unclassified Excavation
 - 3. Excavating, Backfilling, and Compacting for Utilities
 - 4. Excavating, Backfilling, and Compacting for Stone Work
 - 5. Topsoil Placement

1.2 REFERENCES:

- A. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures. Using 5.5 lb Rammer and 12" Drop.
- B. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by Sand-Cone Method.
- C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18" Drop.

1.3 EXISTING CONDITIONS:

- A. Known underground, surface, and aerial utility lines and buried objects are indicated on the drawings. Contact Digger's Hotline and the OWNER five (5) working days prior to start of demolition and construction.
- B. Locate all private utilities; coordinate with OWNER five (5) working days prior to the start of work.
- C. Hand expose existing utilities prior to start of work.

1.4 SUBMITTALS:

- A. Samples: Submit 10 lb sample of each type of fill to testing laboratory, in air-tight containers.

1.5 RECORD DOCUMENTS:

- A. Accurately record locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Topsoil: On site excavated material, graded, free of roots, rocks larger than 1", subsoil, debris, and large weeds.
- B. Subgrade: Excavated material, graded, free of clumps larger than 6", rocks larger than 3", and debris.
- C. Granular Fill: Granular Fill material, when required, shall consist of natural sand or a mixture of sand with gravel, crushed gravel, crushed stone or other broken or fragmented material, meeting the gradation requirements of the Standard Specifications for Highway and Structure Construction, Section 209, Grade 2.
- D. Dense Graded Base Course: Dense graded base course shall meet the requirements of Section 305, Dense Graded Base course of Standard Specifications for Highway and Structure Construction for D.O.T. 1-1/4" Gradation.
- E. Breaker Run: Furnish stone or concrete processed through a primary crusher set to produce a material predominantly 6" or less in at least one dimension. Material may come from any Wisconsin Department of Transportation approved quarry in accordance with section 311.2(2) of the Standard Specifications for Highway and Structure Construction. Deteriorated concrete and non-durable rock such as sandstone, shale, slate, disintegrated granite, or heavily weathered rock of any type is not acceptable to use.
- F. Geosynthetic Separation/Stabilization Fabric: Geosynthetic fabric should conform to the requirements of the Standard Specification for Highway and Structure Construction, Section 645.2.2, Type "SAS".

PART 3 - EXECUTION

3.1 SALVAGING AND SPREADING TOPSOIL:

- A. Remove materials of horticultural value from topsoil prior to stripping.
- B. Disc existing turf 8" deep two directions prior to stripping topsoil material.
- C. Strip topsoil; do not allow topsoil to be mixed with subgrade.
- D. Stockpile salvaged topsoil on site for future use.
- E. Place silt fence around the base of the topsoil stockpile to avoid sediment runoff.

3.2 UNCLASSIFIED EXCAVATION:

- A. Excavating:
 - 1. Excavate in accordance with design grades and elevations.

2. Do not perform additional excavation without prior written authorization of the Owner.
 3. Machine shape banks.
 4. Hand trim excavations to remove loose and/or organic matter.
 5. Fill over-excavated areas under structure bearing surfaces with stone bedding.
 6. Do not disturb soil within canopy line of existing trees or shrubs that are to remain.
 7. If necessary to excavate through canopy line, perform work by hand and cut roots encountered with a sharp axe.
- B. Overhaul:
1. Haul excess material from site and dispose of in a legal manner.
- C. Granular Fill:
1. Place fill materials in lifts not exceeding 9" in depth in accordance with design grades and contours.
- D. Rough Grading:
1. Rough grade site to required contours and elevations as required for finish grading and surface treatment.
 2. Prior to placing fill material over undisturbed subgrade surfaces, scarify to a minimum depth of 6".
- E. Excavating, Backfilling, and Compacting for Pavement:
1. Excavation:
 - a. Excavate the subsoil in accordance with grades and elevation required for completion of the work.
 2. Backfilling:
 - a. Verify areas to be backfilled are not frozen and are free from debris, snow, ice, and water.
 - b. Do not backfill over existing subgrade materials which are wet or spongy.
 - c. Compact existing subgrade materials if densities are not equal to that specified for backfill materials
 - d. Cut out soft, wet, or spongy areas of existing subgrade. Backfill with specified granular fill material and compact to required density.
 - e. Backfill as early as possible to provide time for natural settlement and compaction to occur.

- f. Provide water if needed to maintain optimum moisture content of backfill materials to meet specified compaction density.
- 3. Topsoil Placement as Finishing Grading:
 - a. Place topsoil in areas where seeding and/or sodding is required to a thickness of 6" lightly compacted depth.
 - b. Place topsoil in relatively dry state, during dry weather.
 - c. Finish grade topsoil eliminating rough or low areas while maintaining profiles and contour of subgrade and achieving required 6" compacted depth.
 - d. Remove roots, debris, rocks larger than 1/2" in size, weeds, and foreign material while spreading.
 - e. Manually spread topsoil close to trees, fences, buildings, and other objects to prevent damage.
 - f. Lightly compact topsoil after placement.
 - g. Leave the stockpile area and site clean and ready for seeding or other finish treatment.
- 4. Protection:
 - a. Protect existing features remaining as part of final landscaping.
 - b. Protect existing and established benchmarks, roads, sidewalks, paving, vegetation, and curbs against damage from equipment and vehicular or foot traffic.
 - c. Protect excavation areas by shoring, bracing, sheet piling, underpinning, or other methods as needed to prevent cave-ins or loose dirt from falling into excavations.
 - d. Secure adjacent structures prior to the start of excavation which may be damaged by excavation work, including utility lines and pipe chases.
 - e. Notify A/E of unforeseen subsurface conditions encountered and discontinue work in the area until A/E provides notification to resume work.
 - f. Grade around excavation areas to prevent surface water runoff into excavated areas resulting in ponding.
- 5. Compaction Requirements:
 - a. Compact all turf areas to ASTM D1557, 85% Modified Proctor.
 - b. The CONTRACTOR shall provide equipment capable of adding measured amounts of moisture to the soil material as determined by moisture-density tests. Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply required amount of water to the surface of subgrade, or layer of soil material in such manner as to prevent free water from appearing on the surface during or subsequent to compaction operations. Remove and replace soil material that is too wet to permit compaction to 95% of maximum dry density, as established in accordance with ASTM-D1557.

- c. Place acceptable granular fill material in lifts no greater than 9" loose thickness.
6. Compaction Testing:
- a. Testing of compacted materials will be performed by an independent testing laboratory appointed and paid for by OWNER.
 - b. The OWNER will pay for the cost of one series of tests for the area being evaluated. The CONTRACTOR shall pay for any additional testing costs as required due to improper performance of work.
 - c. When work for this section or portions of work are completed, notify the testing laboratory to perform density tests. Do not continue with additional portions of work until test results have been verified.
 - d. If, during progress of work, tests indicate that compacted backfill materials do not meet specified requirements, remove defective work, replace and retest at no cost to OWNER as directed by the A/E.
 - e. Verify that compacted fills have been tested before proceeding with placement of surface materials.
 - f. In-field testing shall be in accordance with ASTM D2922-78 "Density of Soil and Soil-Aggregate in Place by Nuclear Method." This test correlates to D-1556-74 "Density of Soil in Place by the Sand-Cone Method."
 - g. The CONTRACTOR shall notify the testing laboratory and the A/E a minimum of forty-eight (48) hours in advance of the time compaction testing is required.
 - h. Tolerances: Top Surface of Subgrade: Plus or minus 1/10'.
7. Field Quality Control:
- a. Testing of granular fill and backfill materials will be performed by an independent testing laboratory appointed and paid for by the OWNER.
 - b. The OWNER will pay for the cost of one series of tests on areas being inspected. The CONTRACTOR will pay for costs of additional testing required due to improperly performed work.
 - c. Tests and analysis of fill material shall be performed in accordance with ANSI/ASTM D698 D1557.
 - d. Compaction testing shall be performed in accordance with ANSI/ASTM D1556, ANSI/ASTM D1557, ANSI/ASTM D698.
 - e. If testing indicates that the work does not meet specified requirements, remove work, replace and retest at no cost to OWNER.

END OF SECTION

SECTION 31 23 00 - EXCAVATION AND FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Drawings and general provisions of contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this section.
- B. This section includes excavation and earthwork for all site work including pavement earth subgrade.

1.02 DESCRIPTION OF WORK

- A. Work includes stockpiling topsoil, excavating, loading, hauling, depositing, compacting, grading, pavement subgrade preparation, topsoil respreading, finish grading, and restoring surfaces as necessary to conform to lines, grades, and slopes as shown on plans.

1.03 DEFINITIONS

- A. Reference to percent maximum density shall mean a soil density not less than the stated percentage of maximum density for soil as determined by ASTM D698, "Moisture Density Relations of Soils", using 5.5-lb. rammer and 12 inch drop. (Standard Proctor Method).

1.04 TESTING

- A. Contractor shall employ and pay for services of an independent testing laboratory for tests required to show compliance with specifications.
- B. Contractor to provide equipment and materials as required for de-watering site areas for excavation operations.
- C. Contractor to plan work and provide temporary means for routing storm water drainage as necessary during construction.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Earth: All materials not classified as rock or rubble including loam, silt, gumbo, peat, clay, soft shale, sand, gravel, and fragmentary rock or boulders which can be handled by normal earth moving equipment.
- B. Rock: Boulders so large that they cannot be handled by normal earth moving equipment or solid deposits so firmly cemented together that they cannot be removed without continuous use of pneumatic tools or blasting.
- C. Rubble: Buried concrete foundations, beams, walls, and other materials which cannot be removed without continuous use of pneumatic tools or blasting.
- D. Topsoil: Organic well draining soil free from clay lumps, rocks, stones, concrete, toxic minerals, roots over 1/4" in diameter or other material which will not provide good turf growth. Secure from stripping operations as required or provide as necessary for finish grading.
- E. Contractor shall notify the Owner if unsuitable soils are encountered during construction. Acceptable materials for construction shall include:
 - 1. Fill used for site construction shall be free of organic matter and debris. The soils shall have a liquid limit less than 45 and a plasticity index less than 20 to 25.
 - 2. All backfill and subgrade for pavements shall be compacted to 95% of standard proctor and shall be within a range of 0% to 4% of the materials optimum moisture content.

PART 3 EXECUTION

3.01 EROSION PROTECTION

- A. Code Compliance: The Contractor shall comply with soil erosion control requirements of the issued erosion control plan, permit, the construction drawings and local ordinances. The Contractor shall take all necessary measurements to protect against erosion and dust pollution on this project site and all off-site borrow or deposit areas, during performance or as a result of performance.
- B. Damage claims: The Contractor will hold the Owner harmless from any and all claims of any type whatsoever resulting from damages to adjoining public or private property, including reasonable attorney's fees incurred to Owner. Further, if the Contractor fails to take necessary steps to promptly remove earth sedimentation or debris which comes onto adjoining public or private property, the Owner may, but need not, remove such items and deduct the cost thereof from amounts due the Contractor.
- C. The Contractor shall be responsible for compliance and fulfillment of all requirements of the issued erosion control permit.
- D. Protection of existing utilities: The contractor shall protect existing gas, electric, water, fiber optic, subdrain lines, storm and sanitary service lines encountered during construction. Any damage shall be repaired by the Contractor to the Owners specifications at the Contractor's expense.

3.02 EXCAVATION

- A. Excavate, load, transport and place excavated materials as necessary to conform to lines, grades and slopes as shown on plans.
- B. Roll and compact cut areas to density not less than specified for fill area.
- C. If soft or yielding materials are encountered near finished grade in cut areas, remove unstable materials at a depth specified by Owner and replace with suitable materials and compact.
- D. Excavate in manner to avoid construction of lenses, pockets, streaks or layers of material differing from surrounding materials in fill areas.
- E. Cooperate with Owner in selection of locations for placement of excavated materials which differ appreciably from surrounding materials.
- F. Maintain excavation in free draining condition; provide drainage for any water or springs which may be encountered.
- G. The Contractor shall notify the Owner should existing drain tile be encountered during excavation and earthwork activities. Contractor is to connect all existing tiles encountered during construction to the storm sewer system.
- H. Provide temporary drainage facilities to prevent damage when necessary to interrupt natural drainage or flow of storm sewers, culverts or subdrains.
- I. Maximum height of vertical cut shall be three (3) feet.

3.03 FILL

- A. Prepare areas for fill by discing, plowing and scarifying to depth of 4 to 6 inches following topsoil removal under building pad or proposed paved areas.
- B. If soft or yielding materials at existing grade are encountered, remove unstable materials and replace with suitable materials and compact prior to fill operations.

- C. When fill meets natural grade of slope, cut bench in existing slope to connect existing grade with new fill.
- D. Step or bench all existing slopes greater than 5 horizontal to 1 vertical to connect existing grade with new fill.
- E. Place no roots, brush, grass or other organic material in fill under buildings, pavement, and pond areas. Place no material on fill when material or foundation is frozen.
- F. Select material for each portion of fill with approval of the Engineer; select materials to avoid sharp change in texture.
- G. Use fill material free of lenses, pockets, streaks or layers of materials differing from surrounding materials.
- H. Construct fill in horizontal layers not more than 9 inches in loose thickness.
- I. Deposit each layer over full width of fill as separate and distinct operation.
- J. After layer is deposited, smooth to uniform depth by means of suitable motor patrol or bulldozer.
- K. Maintain fill in free draining condition, provide drainage for any water or springs which may be encountered, except in the pond areas.
- L. If soft or yielding materials are encountered within fill areas due to trapped water, remove unstable materials and replace with suitable materials and compact.

3.04 COMPACTION

- A. Contractor is responsible for all required compaction tests. Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality control testing.
 - 1. Allow testing agency to inspect and test subgrades and fill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
 - 2. Perform soil density and moisture tests on earthwork at locations selected by Owner to show compliance of compaction with specifications. Provide one test every 1,000 square yards of subgrade preparation, 1,800 square yards of fill placement, or as may be required by geotechnical engineer. Intent is to provide sufficient test to adequately control and represent the compaction procedures.
 - 3. If compaction fails density and moisture tests, rework fill by mechanical means until specified density and moisture is obtained; Contractor shall pay all costs for testing and retesting.
- B. Compact all materials placed in fill.
- C. Compact selected materials in horizontal layers with tamping or sheepsfoot roller; use roller designed to provide at least 200 psi distributed on one row of knobs; tamping feet must project not less than 6½ inches from face of drum.
- D. Compact layer by rolling with tamping type roller until full weight of roller is supported by tamping feet.
- E. Roller will be considered to be supported entirely on its tamping feet when feet do not penetrate more than 3 inches into material being compacted.
- F. If soil is wet so that it will not sufficiently compact by one passage of roller per inch of loose thickness, provide one discing per 2 inches of loose thickness.
 - 1. Cut and stir full depth of layer.
 - 2. Allow interval of not longer than 2 hours between successive discings, or as directed by Geotechnical Engineer.
 - 3. After discing is completed, compact layer by specified rolling.

- G. If soil is dry so that it will not satisfactorily compact by rolling, moisten material before compaction; manipulate material to secure proper distribution of moisture before compaction.
- H. Compact fill slopes progressively until slopes are stable.
- I. Place fill and compact on all sides of structures to same level as fill operation progresses to protect structures against displacement or other damage.
- J. Areas adjacent to structures which cannot be tamped with rollers: hand tamp with mechanical tamper to same degree of compaction as specified for other parts of fill.
- K. Place fill material in maximum of 8 inch lifts.
- L. Whenever operations are suspended during period, when rain is likely to occur, smooth and compact surface to shed water readily.
- M. Compact all fill material in non-paved areas to not less than 85% maximum density as determined by ASTM D698 (Standard Proctor Method) with moisture content within 0% to plus 4% points optimum moisture.
- N. Compact all fill material in the upper 12 inches below paved areas, proposed building area, proposed future building area, and below footing elevations to not less than 95% maximum density as determined by ASTM D 698 (Standard Proctor Method) with moisture content within 0% to plus 4% points of optimum.

3.05 SUBGRADE PREPARATION

- A. Shape and consolidate subgrade for placement of pavements.
- B. Prepare subgrade as separate and distinct construction operation just prior to pavement placement.
- C. Provide a uniform composition below top of subgrade of at least 12 inch depth under new paving plus 2 feet outside pavement limits.
- D. Compact upper 12 inches with moisture and density control (95% MD). Moisture content to be 0% to 4% points of optimum.
- E. Excavate top 6 inches of subgrade, scarify, pulverize, mix and recompact with moisture and density control. Pulverize, mix and replace top 6 inches of subgrade and compact with moisture and density control (95% MD).
- F. Other methods for construction of subgrade preparation may be considered for use if uniform composition of finished subgrade is obtained and moisture and density tests taken at top of final subgrade and at 6 inches below top of final subgrade meet specified requirements as approved by Owner.
- G. Remove stones over 3 inches in size from subgrade and stockpile as directed by Owner.
- H. If ruts or other objectionable irregularities form in subgrade during construction, reshape and reroll subgrade before placing pavement; fill ruts or other depressions with material similar to other subgrade material and compact. No extra payment will be made for subsequent subgrade re-compaction.
- I. Construct to elevation and cross section such that, after rolling, surface will be above required subgrade elevation.
- J. Proof roll subgrade with loaded tandem axle truck to determine uniformity and stability of subgrade.
- K. If soft or yielding areas are located, remove unstable materials and replace with suitable materials and compact as specified.
- L. Complete final subgrade within drive areas by excavation to grade by use of steel-shod template supported on side forms or support rollers or by use of automatically controlled subgrade excavating machine.

- M. Check subgrade elevation and grade within drives and parking areas by method approved by Owner prior to paving. No additional payment will be made for rework of subgrade after rain or snow events. The Contractor is responsible for scheduling subgrade operations with pavement installations to ensure proper timing of construction.
- N. Maintain subgrade prior to and during paving operations; repair any damaged or disturbed areas prior to paving. No additional payment will be allowed for the re-compaction of subgrade area if work is not protected.

3.06 FINISH GRADING

- A. Finish excavating and fill areas to conform to lines, grades and slopes as shown on plans or as directed by Owner.
- B. Maximum allowable variation in finished earth grade from design grade outside of paved areas is 0.2 feet. Grade and slope all earth surfaces to drain.
- C. Smooth and finish all earth surfaces disturbed by construction operations.
- D. Provide continuous use of blade grader, dozer or similar equipment of adequate size and power to handle materials encountered during finishing of excavation and fill.
- E. Respread stockpiled topsoil as required for finish grading to a minimum 6 inch depth.
- F. Disc earth surfaces to depth of 3 inches and place topsoil 6 inches deep on finished earth surfaces; smooth and grade ready for turf bed preparation.
- G. Schedule and coordinate topsoil resspreading with seeding, sodding, and planting operations.

END OF SECTION

SECTION 31 23 16 - TRENCH AND BACKFILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Trench excavation for pipe systems, manholes, intakes and other structures.
- B. Trench bedding and foundation stabilization.
- C. Pipe and structure placement and backfill.

1.02 DESCRIPTION OF WORK

- A. Perform all excavations required to complete the work shown on the plans.
- B. Prepare trench excavations and shoring for new work, and install the utility lines, structures, and system components, including bedding and foundation stabilization.
- C. Complete specified backfill operation.

1.03 SUBMITTALS

- A. Submit under provisions of Division 1.
- B. Gradation reports for fill materials and bedding materials.
- C. Results of Proctor and In-Place Density Tests on backfill.
- D. Contractor will provide Material Certifications to the Engineer.
- E. Contractor's dewatering plan.

1.04 SUBSTITUTIONS

- A. Use only materials conforming to these specifications unless permitted otherwise by Engineer.
- B. Obtain approval of Engineer for all substitutions prior to use.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver only materials that fully conform to these specifications or for which submittals have been provided to Engineer and approved for use.
- B. Store delivered materials and excavated materials in locations that will not interfere with operations and minimize environmental damage.
- C. Grade and shape stockpiles for drainage and protect adjacent areas from runoff. Provide erosion control around stockpiles.
- D. Remove unsuitable and excess materials from the site.

1.06 SCHEDULING AND CONFLICTS

- A. Construction Sequence:
 - 1. Attend a preconstruction meeting if required by Engineer.
 - 2. Submit plan for construction sequence and schedule prior to commencing construction.
- B. Conflict Avoidance:
 - 1. Expose possible conflicts in advance of construction, such as utility lines and drainage structures. Verify elevations and locations of each and verify clearance for proposed construction.
 - 2. Complete other elements of the work that can affect line and grade in advance of other open cut construction unless noted on the plans.
 - 3. Notify Engineer of conflicts discovered or changes needed to accommodate unknown or

changed conditions.

1.07 SPECIAL REQUIREMENTS

- A. Stop Work: Stop work and notify Owner immediately if contaminated soils, historical artifacts, or other environmental or historic items are encountered.
- B. Use of Explosives: Not allowed.
- C. Conform to local, state, and federal requirements.
- D. Abandoned Utilities: Remove and dispose of abandoned utility lines including gas mains, water mains, sewer mains, telephone conduits, service lines, etc. required to complete the work. Said work shall be incidental to the project unless otherwise specified.

PART 2 PRODUCTS

2.01 EXCAVATED MATERIALS

- A. Unclassified Excavation: Excavation of all materials encountered, except rock and over-excavation.
- B. Rock Excavation: Boulders or sedimentary deposits that cannot be removed without continuous use of pneumatic tools or blasting.
- C. Over-excavation: Excavation of soil or rock in trenches below the pipe zone.
- D. Suitable Excavated Materials for Backfill:
 - 1. Soil, clay, silt, sand, and gravel with moisture content suitable to achieve required compaction. ASTM D 2321, Class II through IVA (see 312316, 2.01, E).
 - 2. Fine-grained soils according to ASTM D 2321 Class IVB (inorganic) (see 312316, 2.01, E) may be used in the final backfill upon approval of the Engineer.
 - 3. Adjust moisture content of excessively wet, but otherwise acceptable, material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.
 - 4. Adjust moisture content of excessively dry, but otherwise acceptable material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.
 - 5. Lime or fly ash may be added to soils to produce a suitable backfill material. Uniformly mix soil and additive. Determine Standard Proctor maximum density and optimum moisture content of the modified material. Amount of additive applied is subject to Engineer's approval.
- E. Non-Manufactured (Excavated) Backfill Materials: See Sections 2.03 and 2.04. Also applies for manufactured backfill.
- F. Unsuitable Material: Remove unsuitable materials from the site, including, but not limited to, the following:
 - 1. Rock with gradation not meeting the stated gradation for stabilization material.
 - 2. Individual stones or concrete chunks larger than 6 inches, and averaging more than one per each cubic foot of soil.
 - 3. Frozen materials.
 - 4. Stumps, logs, branches, and brush.
 - 5. Trash, metal, or construction waste.
 - 6. Soil in clumps or clods larger than 6 inches, and without sufficient fine materials to fill

- voids during placement.
- 7. Unsuitable soils, as defined in Section 311000, 2.03, excluding material used as topsoil.
- 8. Class V Material (ASTM D 2321).
- 9. Environmentally-contaminated soils.
- 10. Soils deemed unsuitable by the geotechnical engineer.
- G. Replacement of Unsuitable Soils:
 - 1. If the excavated material is determined by the Engineer to be unsuitable and cannot be conditioned so that it becomes suitable, furnish all necessary backfill material.
 - 2. Remove and dispose of unsuitable material from the site.

2.02 STABILIZATION (FOUNDATION) MATERIALS

- A. Clean 2-1/2 inch crushed stone or crushed portland cement concrete (PCC) material, with the following gradation:

Sieve	Percent Passing
2-1/2"	100
2"	90 to 100
1-1/2"	35 to 70
1"	0 to 20
1/2"	0 to 5

- B. Engineer may authorize a change in gradation subject to materials available locally at time of construction. Subject to the Engineer's approval, crushed concrete may be used if it is within plus or minus 5% of the gradation for each size of material.

2.03 CLASS I GRANULAR BEDDING AND BACKFILL MATERIAL (Storm Sewers and Sanitary Sewers)

- A. Use gravel or crushed stone for granular bedding, complying with the following gradation:

Sieve	Percent Passing
1-1/2"	100
1"	95 to 100
1/2"	25 to 60
No. 4	0 to 10
No. 8	0 to 5

Note: Engineer may authorize the use of crushed PCC, for pipe sizes up to 12 inches, or a change in gradation subject to materials available locally at time of construction.

- B. Use aggregates having a percentage of wear, Grading A or B, not exceeding 50%, determined

according to AASHTO T 96.

2.04 CLASS II BACKFILL MATERIAL (Storm Sewers, Sanitary Sewers, and Water Mains)

- A. Class II material is manufactured and non-manufactured open graded (clean) or dense graded (clean) processed aggregate, clean sand, or coarse-grained natural soils (clean) with little or no fines.
- B. Class II material is non-plastic soil less than 1-1/2 inches in size and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
GW	Well-graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	Where hydraulic gradient exists check gradation to minimize migration. Clean groups suitable for use as drainage blanket and underdrain.
GP	Poorly graded gravels and gravel sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	
SW	Well-graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	
SP	Poorly graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	

- C. Class II material may be specified in the contract documents by the Engineer between the pipe embedment zone and the top 2 feet of final backfill when the trench is under the pavement.

2.05 CLASS III BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

- A. Class III material is natural coarse-grained soils with fines.
- B. Class III material consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
GM	Silty gravels, gravel-sand-silt mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.	Do not use where water condition in trench may cause instability.
GC	Clayey gravels, gravel-sand-clay mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.	

SM	Silty sands, sand-silt mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.
SC	Clayey sands, sand-clay mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.

C. Compaction: See Section 31 23 16, 3.06.

2.06 CLASS IVA BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

- A. Class IVA material is natural fine grained inorganic soils.
- B. Class IVA material follows Section 31 23 16, 2.01, G and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
ML	Inorganic silts, very fine sands, rockflous, silty or clayey fine sands. Liquid limit 50% or less. 50% or more passes No. 200 sieve.	Obtain geotechnical evaluation of proposed material. May not be suitable under deep fills, surface applied wheel loads, and under heavy vibratory compactors and tampers. Do not use where water conditions in trench may cause instability.
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Liquid limit 50% or less. 50% or more passes No. 200 sieve.	

C. Suitable only in dry trench conditions.

2.07 CLASS IVB BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer and Water Mains)

- A. Class IVB material is natural fine-grained inorganic (high elastic silts and plastic clays - fat clay) with a liquid limit greater than 50%.
- B. Class IVB material follows Section 31 23 16, 2.01 and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.	Not to be used in pipe embedment zone.

CH	Inorganic clays of high plasticity, fat clays. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.
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- C. When approved by the Engineer, Class IVB material may be used as final trench backfill in a dry trench.
- D. Do not use in the pipe embedment zone.

2.08 CLASS V BACKFILL MATERIAL (Topsoil)

- A. Class V Material is natural highly organic soils with a liquid limit greater than 50%. See Section 31 23 16, 2.01.
- B. Use Class V Material only as topsoil outside of the pavement, unless otherwise specified or allowed by the Engineer.
- C. Do not use Class V Material in the pipe embedment zone.

2.09 BEDDING AND BACKFILL MATERIALS FOR PIPE CULVERTS

- A. Bedding:
 - 1. Use minimum Type C embedment (see plan details).
 - 2. Install water stop or curtain wall at culvert inlet, as specified in the contract documents.
- B. Backfill Material:
 - 1. Use all suitable material excavated for pipe culvert work for backfill material.
 - 2. Dry suitable material that has excessive moisture prior to placement.
 - 3. Remove unsuitable material from the project site.

2.10 BEDDING AND BACKFILL MATERIALS FOR SUBDRAINS

- A. Drainable Bedding and Backfill Materials Include:
 - 1. Porous backfill material.
 - 2. Pea gravel.
 - 3. Use as shown on the plans or on the detailed drawings.
- B. Porous Backfill Material: Crushed stone or gravel with the following gradation.

Sieve	Percent Passing
3/4"	100
1/2"	95 to 100
3/8"	50 to 100
No. 4	0 to 50
No. 8	0 to 8

- C. Coarse Aggregate: Use Stabilization Materials, per Section 31 23 16.
- D. Pea Gravel: Use commercially available pea gravel.
- E. Impervious Bedding: Use least permeable on-site materials.
- F. Engineering Fabric: Use as acceptable to WisDOT standard specifications.

PART 3 EXECUTION

3.01 PREPARATION

- A. When natural soils for Class II, III, and IV backfill material is required as specified in plan details, provide written certification from a testing laboratory that the material meets the class specified if so requested by the Engineer.
- B. Locate, mark, and protect existing utilities and facilities in the work area.
- C. Provide access to utility service locations, such as valves, manholes, and utility poles.
- D. Identify owners of utilities on or near the site, and notify them of operations to occur.
- E. Protect existing facilities and landscaping features, or replace as shown on the plans.
- F. Protect bench marks, control points and land survey monumentation, or replace at Contractor's expense.

3.02 TRENCH EXCAVATION

- A. Notify the Engineer prior to the start of excavation activities.
- B. Remove and stockpile the top 8 inches of topsoil for subsequent reuse.
- C. Place excavated material away from trench. Grade spoil piles to drain. Do not allow spoil piles to obstruct drainage.
- D. Remove rock, rubbish, boulders, debris, and other unsuitable materials at least 6 inches below, and on each side of the pipe. Restore grade using soil suitable for backfill.
- E. Correct unauthorized excavation at no cost to Owner, using bedding or stabilization materials.
- F. Provide protective fences and barricades around open excavations, appropriate to the surrounding area.
- G. Provide weight tickets for stabilization material to the Owner at the time of delivery.
- H. Provide safety fence around open excavations.
- I. Trench Excavation for Sanitary Sewers, Storm Sewers, Water Mains, and Pipe Culverts:
 - 1. Maximum and minimum pipe trench width: See plan details.
 - 2. Flat trench bottom, conduit bearing directly on trench bottom (not applicable for rock excavation) for water main pipe only with bell hole shaping:
 - a. Shape trench bottom to support pipe around 1/4 of perimeter for the full length of the pipe barrel.
 - b. Provide bell holes.
 - 3. Trench bottom, conduit supported by bedding material:
 - a. Excavate trench as shown on the detailed drawings.
 - b. Install bedding material to support the full length of the pipe barrel.
 - 4. Trench depth:
 - a. See plan details.
 - b. For those material types not shown in the plan details, the maximum height of bury will be 20 feet. Installations greater than 20 feet require submittal of licensed professional engineer trench design and certification.
 - 5. Conform all trench operations to current OSHA regulations.
- J. Structure Excavation:
 - 1. For concrete structures and parts of structures without footings, 18 inches outside the horizontal projection of the structure.
 - 2. For concrete structures with footings, 18 inches outside the footings.
 - 3. For anchor rods, 12 inches on each side of the rod.
 - 4. For buried anchors, the face of the buried anchor on one side and 24 inches outside the

buried anchor on the other face.

3.03 ROCK OR UNSTABLE SOILS IN TRENCH BOTTOM

- A. Notify the Engineer prior to over-excavation.
- B. Contractor will determine the need for trench bottom stabilization prior to installation of pipes and structures.
- C. See plan details for over-excavation of rock and wet or soft foundations.
- D. Provide weight tickets for the stabilization material to the Owner at the time of delivery.

3.04 SHEETING, SHORING, AND BRACING

- A. Conform sheeting and bracing of all excavations to the latest state and federal regulations governing safety of workers in the construction industry.
- B. Leave in place all temporary sheeting below 2 feet over top of pipe unless sheeting removal plan is approved by Engineer. Conform all trench operations to current OSHA regulations.
- C. Move trench boxes carefully to avoid excavated wall displacement or damage.
- D. When necessary or required, install adequate sheeting and bracing to prevent ground movement that may cause damage or settlement to adjacent structures, pipelines, and utilities.
- E. Any damage due to settlement because of failure to use sheeting or because of inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.
- F. For sides of trenches in unsuitable, loose, or soft material, shore, sheet, brace, slope, or otherwise support by means of sufficient strength to protect employees working within them.
- G. Where excavations are made with vertical sides that require supporting, use sufficient strength for sheeting and bracing to sustain the sides of the excavations and to prevent movement that could in any way injure the work or adjacent structures, or diminish the working space sufficiently to delay the work.
- H. Select sheeting and bracing material of sufficient dimensions and strength to adequately support the sides of trenches and excavations, which will not split when driving and will be free of imperfections that may impair its strength or durability.
- I. Drive sheeting to true alignment and ensure contact of adjacent pieces.
- J. In wet excavation, use grooved sheeting to prevent passage of soil. Fill any voids between sheeting and face of excavation with suitable material.
- K. Do not remove sheeting and bracing before the completion of the work, unless otherwise directed by the Engineer.
- L. For sheeting left in place, cut off 18 inches for clearance below the bottom of the pavement in streets/highways and 18 inches below the original ground surface, unless otherwise required by the contract documents or the Engineer. Leave in place all temporary sheeting below 2 feet over top of pipe, unless a sheeting removal plan is approved by Engineer.

3.05 DEWATERING

- A. Do all work in dry conditions; do not install pipes on excessively wet soil.
- B. Perform the dewatering operation according to the dewatering plan submitted to the Engineer. Dewatering operations may be modified from the plan for actual field conditions, with approval of the Engineer.
- C. Adequate dewatering is the Contractor's responsibility unless otherwise stated in the contract

documents.

- D. Install dewatering system appropriate for the soil conditions.
- E. Maintain water levels sufficiently below the bottom of trench excavation, (typically 2 feet) to prevent upward seepage.
- F. Provide for handling water encountered during construction:
 - 1. Prevent surface water from flowing into excavation. Remove water as it accumulates.
 - 2. Do not use sanitary sewers for disposal of trench water. Discharging water into storm sewers requires Engineer's approval.
 - 3. Do not discharge water onto adjacent property without property owner's approval.
 - 4. Maintain and control water discharge as necessary to prevent a safety hazard for vehicular and pedestrian traffic.
 - 5. Direct water discharge away from electrical facilities or equipment and intersections.
 - 6. Use noise and fume reducing dewatering equipment to minimize disturbance.
 - 7. Provide at least two operating pumps for each trench opened in wet ground, and at the same time have one pump in reserve.
- G. Place backfill in trenches prior to stopping dewatering operations.
- H. Protect trench water discharge points from erosion.
- I. Operate dewatering systems to prevent damage to adjoining structures and facilities.
- J. Monitor adjoining structures and facilities during dewatering operations. Cease dewatering operations and notify the Engineer if damage is observed.

3.06 PIPE INSTALLATION

- A. Refer to plans, as appropriate, for the installation. Use only the types of materials shown for each position within the trench, for the given groundwater conditions, for the compaction to be provided, and for the type of pipe being installed.
- B. Pipe Bedding:
 - 1. Shape pipe bed to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe.
 - 2. Install pipe and system components.
 - 3. Place bedding simultaneously on both sides of the pipe. Correct any pipe displacements before proceeding.
 - 4. Place bedding in lifts no greater than 6 inches thick, consolidate, and moderately compact.
 - 5. Concrete encasement: Install where shown on the plans.
 - 6. If required in the contract documents or if approved by the Engineer, flowable mortar or controlled low strength material may be used in lieu of other bedding material types.
 - 7. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.
- C. Haunch Support:
 - 1. Place granular haunch material in lifts no greater than 6 inches thick, consolidate, and moderately compact by slicing with a shovel or using other approved techniques.
 - 2. If required in the contract documents, or if approved by the Engineer, concrete, flowable mortar, or controlled low strength material may be used instead of other haunch material types. Secure pipe against displacement or flotation prior to placing flowable mortar, controlled low strength material, or concrete encasement.
- D. Primary and Secondary Backfill (Pipe Cover):
 - 1. Place pipe cover material in 6-inch lifts. Compact Class I and II (cohesionless) materials to a minimum of 65% Relative Density. Compact Class III and IVA (cohesive) materials to a minimum of 95% of maximum Standard Proctor Density.
 - 2. If required in the contract documents or if approved by the Engineer, flowable mortar or

controlled low strength material may be used in lieu of other cover material types. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.

3. Special pipe support: If required, provide special pipe support as shown on the plans.
- E. Final Trench Backfill:
 1. Place backfill in the trench immediately after recording locations of connections and appurtenances or at Engineer's direction.
 2. Place backfill adjacent to structures immediately after concrete has reached design strength and connecting work has been completed.
 3. Allow no more than 100 feet of trench to be open overnight or when work is not in progress except as provided on the plans.
 4. Place suitable excavated backfill:
 - a. Carefully place backfill over top of pipe and around structures.
 - b. Compact as required.
 5. Compaction:
 - a. Within street right-of-way, compact each lift to a minimum of 65% Relative Density for Class I and II (cohesionless) materials and a minimum of 95% of maximum Standard Proctor Density for Class III and IVA (cohesive) materials.
 - b. Outside of the street right-of-way, compact to a minimum of 50% Relative Density for Class I and II (cohesionless) materials and a minimum of 90% of maximum Standard Proctor Density for Class III and IVA (cohesive) materials.
 - c. In areas more than 3 feet below pavement structure, place backfill in lifts no thicker than 8 inches.
 - d. In areas less than 3 feet below pavement structure, place backfill in lifts no thicker than 6 inches. Terminate backfill at 8 inches below finish grade in areas to remain unpaved, and to subgrade elevation in areas to be paved. Place 8 inches of topsoil in unpaved areas.
 - e. When crossing under levees, railroads, and State or Federal highways, comply with the compaction requirements of these jurisdictions, if more stringent than these requirements.
 - f. For Vitrified Clay Pipe (VCP), keep all heavy compaction equipment 5 feet above the top of the pipe. In the area less than 5 feet, use hand held compactors. Do not allow the compactor to come in contact with the pipe.
 6. Moisture Range: Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.
 7. Dispose of surplus and unsuitable materials.
 8. Hydraulic compaction (flooding with water) is not allowed.
- F. Casing Pipe: Place bedding and backfill materials for casing pipe the same as for a rigid gravity flow pipe.

3.07 PIPE INSTALLATION IN CONSTRUCTED EMBANKMENTS

- A. Install all pipes in trenches according to plans. When allowed by the contract documents, pipes may be constructed in embankments as follows:
- B. Placing Pipe Sections:
- C. Placing Backfill for Pipes:
 1. Thoroughly tamp backfill under and around the pipe and in layers not to exceed 8 inches for the full length and width of the pipe.
 2. Place backfill and thoroughly tamp around and over the pipe for its full length.
 3. Extend the completed embankment on both sides of the pipe from the original ground line to at least 1 foot above the top of the pipe with a slope as shown in the contract documents. Construct the embankment over the pipe with a width no less than the

outside diameter of the pipe and centered over the pipe. If necessary to accommodate construction traffic, increase the height of fill to the nominal diameter of the pipe or 3 feet, whichever is greater.

4. When pipe are laid wholly or partly in a trench, granular backfill material may be required for backfill. Compact the remainder of the fill to at least 1 foot above the top of the pipe with slopes as outlined above.
5. If the trench has been cut wide enough to permit use of a roller, after the pipe is bedded, thoroughly tamp the backfill material under and alongside the pipe with a mechanical tamper to the mid-height elevation of the pipe.
6. The contract documents may require placement of pipe with moisture control. When not required, place roadway pipe after construction of an embankment by methods that will produce results equivalent to those required for construction of the embankment, except that moisture determinations will be waived for placing backfill completed within 48 hours after excavation.
7. In addition to the normal backfill material requirements, when directed by the Engineer, build such approach fills to provide a roadway 10 feet in width over the pipe with grades no steeper than 10%.

3.08 STRUCTURE BEDDING

- A. Bedding for Structures Bearing on Undisturbed Soils:
 1. Shape the bottom to accurate grade and size.
 2. Remove loose material, large clods, stones, and foreign materials.
 3. In unstable soils or rock conditions, see Section specifications for stabilization requirements. Follow bedding requirements as shown in plans.
- B. Bedding for Structures Bearing on Bedding Material:
 1. Over excavate to minimum of 8 inches or as specified in the contract documents.
 2. Place bedding material for structures according to the contract documents and with the material and control specified in Figure 312316.1.

3.09 STRUCTURE BACKFILL

- A. Removal of Forms and Falsework:
- B. Placement of Backfill: Place backfill after structure concrete has reached at least 80% of the design strength and connecting work has been completed, unless otherwise specified. Determine strengths under comparable conditions. If strength is not determined, place backfill after 14 days.
- C. Backfill Against Walls and Around Structures:
 1. Where backfill is required on both sides of a concrete wall and around all sides of monolithic structures, proceed with filling operations simultaneously on all sides of walls and structures so the fill is kept at approximately the same elevation at all times. Consider concrete box, arch, and circular culvert monolithic structures.
 2. Compact the 3 feet closest to all walls or wing faces by pneumatic or hand tampers only.
- D. Placing Backfill with Excavated Material:
- E. Unless otherwise specified, see Section 312316, 3.06, D for suitable excavated materials for backfill.

3.10 OPEN CUT CASING PIPE INSTALLATION

- A. Casing Pipe: Install casing pipe according to Specifications as appropriate.

3.11 FIELD QUALITY CONTROL

- A. References:
 - 1. ASTM C 136; Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D 698; Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Moisture Using 5.5 pound (4.54 kg) Rammer and 12 inch (305 mm) Drop. (Standard Proctor Method)
 - 3. ASTM D 1556; Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 4. ASTM D 2216; Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
 - 5. ASTM D 2922 and D 3017; Test Methods for Density of Soil and Soil-Aggregate in Place and Water Content of Soil and Rock by Nuclear Methods (Shallow Depth).
 - 6. ASTM D 4253 and D 4254, Test Methods for Maximum Index Density of Soils using a Vibratory Table and Minimum Index Density of Soils and Calculation of Relative Density.
- B. Compaction Testing: Provide compaction testing of backfill, using the services of an independent testing laboratory approved by the Engineer.
- C. Schedule Testing: Notify Engineer when work is prepared for testing.
- D. Soil Testing:
 - 1. Cohesive soils: Determine moisture-density relationships by ASTM D 698 (Standard Proctor). Perform at least one test for each type of cohesive soil used.
 - 2. Cohesive soils: Determine in-place density and moisture content using ASTM D 1556 (sand-cone method) and D 2216 or ASTM D 2922 and D 3017 (nuclear).
 - 3. Non-cohesive soils: Determine maximum and minimum index density and calculate relative density using ASTM D 4253 and D 4254 (cohesionless soils).
 - 4. Gradation: Test according to ASTM C 136.
- E. Testing Frequency and Locations: Perform testing of the final trench backfill, beginning at a depth of 2 feet above the top of the pipe, as follows:
 - 1. Contractor provided:
 - a. Make one test per each 2 vertical feet of consolidated fill at each street crossing.
 - b. one test per each 2 vertical feet of consolidated fill for each 200 horizontal feet of trench.
 - c. Additional testing may be required by Engineer if non-compliance or a change in conditions occur.
 - d. Coordinate the timing of testing with the Engineer.
 - e. The Engineer will determine the location of testing.
 - f. If necessary, excavate to the depth and size as required by the Engineer to allow compaction tests. Place backfill and recompact.
- F. Test Failure: Rework, recompact, and retest as necessary until specific compaction is achieved in all areas of the trench.
- G. Retesting: In event of failed tests, Engineer may require retesting as deemed necessary. Costs of such retesting shall be paid by the Contractor, at no additional cost to the owner.

END OF SECTION

SECTION 31 25 00 - EROSION CONTROL

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section consists of providing all work, materials, labor, equipment, and supervision necessary to provide and construct erosion control measures necessary to protect property and the environment.

1.2 RELATED WORK

- A. Applicable provisions of Division 01 govern work under this Section.
- B. Provide erosion control in accordance with the following references:
 - 1. Wisconsin Department of Natural Resources Technical Standards For Construction Site Erosion and Sediment Control.
<http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm>
 - 2. Erosion Control Product Acceptability List ("PAL"), current version as published by the WisDOT. <http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrcs/tools/pal/pal-8-11-2017.pdf>
- C. Method of measurement and basis of payment sections in any referenced erosion control documents shall not apply to this contract.
- D. These documents are available from: State of Wisconsin Document Sales and Distribution 202 South Thornton Avenue; P.O. Box 7840; Madison, WI 53707; 608-266-3358

1.3 PERMITS

- A. Contractor shall be responsible for obtaining and maintaining all erosion control permits associated with the project.

1.4 SUBMITTALS

- A. The Lead Contractor will submit the following to the A/E:
 - 1. Contractor shall mark-up of the Erosion Control Plan that is included in these documents showing additional or alternate erosion control measures as needed due to the Contractors means and methods throughout all phases of construction. The Contractor may also be required to submit calculations and backup information showing the proposed measures meet applicable regulations.
 - 2. Submittals for materials used to implement the erosion control plan.
- B. Submit shop drawings for the following erosion control features:
 - 1. Silt Fence
 - 2. Sediment Logs
 - 3. Erosion Mat

1.5 EROSION CONTROL PLAN

- A. The A/E has prepared an erosion control plan for the project and will apply for the required NOI permit. The Contractor will provide the A/E with submittals for materials

used to implement the erosion control plan, as well as any modifications to the erosion control plan that are necessary due to the Contractor's means and methods of construction.

- B. Contractor shall comply with all the requirements of the erosion control plan, and the Wisconsin Pollutant Discharge Elimination System, WPDES. The project specific WPDES Construction Site Stormwater Discharge Permit for Erosion Control and the Sauk County Stormwater and Erosion Control Permit shall supersede the General Permit.
- C. Erosion control and storm water management practices shall be installed and maintained in accordance with WDNR approved Technical Standards (or equivalent).
- D. Contractor shall provide all erosion control practices necessary to protect property and the environment. Erosion control and storm water management practices shall be installed and maintained in accordance with the WDNR approved Technical Standards (or equivalent).

PART 2 - PRODUCTS

2.1 GENERAL

- A. Erosion mats, soil stabilizers, and tackifiers shall be listed on the Product Acceptability List for Multi-Modal
- B. Applications ("PAL") as published by the Wisconsin Department of Transportation.
- C. When the design or contract includes permanent erosion control or stormwater control features, the contractor may employ these items in his control of erosion and stormwater during his construction activities. However, these items shall be fully cleaned, restored, and in every way fully functioning for its intended permanent use prior to acceptance of the work.

2.2 STRAW BALE BARRIERS

- A. Rectangular bales of hay or straw, tightly bound with twine, not wire.
- B. Anchor stakes shall be "T" or "U" steel posts, or hardwood, 2.0 by 2.0 inches nominal. Rebar shall not be used to anchor bales.

2.3 SILT FENCE

- A. Fence fabric shall comply with the requirements of Standard Specifications for Highway Construction 628.2.6, in 3 foot tall rolls, with 4' tall 2" x 2" nominal cross section hardwood posts spaced a maximum of 10' o.c. Silt fence shall be Mirafi, Trevira, Amoco, CFM, or approved equal.

2.4 SEDIMENT LOGS

- A. Sediment logs shall be 12" in diameter and staked with a wooden stake to secure the log to the ground. Logs shall be embedded at least 0.2'. All products used for this application shall be on the WisDOT PAL list.

2.5 EROSION MAT

- A. A straw/coconut fiber mat encased in an accelerated photodegradable polypropylene top net. Erosion mat shall comply with the requirements of Class I, Type A erosion mat as defined by Standard Specifications for Highway Construction and the PAL. Erosion mat

shall be American Excelsior, SI Geosolutions, Erosion Control Systems, North American Green, or approved equal.

- B. Concentrated Areas/Channels (as indicated on plans): This mat shall be North American Green SC150, or approved equal.
- C. Erosion Mat at Storm Outlets: This mat shall be ProPex LandLok 300, or approved equal.
- D. Erosion Mat in bio-filtration and raingarden areas shall be North American Green SC-150BN or approved equal.

2.6 STAPLES

- A. Use biodegradable staples in accordance with manufacturer's recommendations for materials being anchored. Wood and metal staples are not allowed.

2.7 RIP-RAP

- A. Rip rap shall be the class specified and shall conform to Standard Specifications for Highway Construction Section 606.2.

2.8 TRACKING PAD STONE

- A. The aggregate for tracking pads shall be 3 to 6 inch clear or washed stone. All materials shall be retained on a 3-inch sieve.

2.9 SOIL STABILIZERS

- A. Soil stabilizers shall be non-asphalt-based products of the type specified, and meeting the requirements of the PAL.

2.10 SOIL TACKIFIERS

- A. Soil tackifiers shall be non-asphalt-based products of the type specified, and meeting the requirements of PAL.

2.11 POLYMERS

- A. Polymers used to settle suspended sediment shall meet the requirements of the WDNR Technical Standards.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install erosion control measures as required by the erosion control plan and contract documents. Provide additional erosion control measures as dictated by Contractor's means and methods, or by differing site conditions. Notify Construction Representative of additional erosion control features that are provided, but not shown on the plan.
- B. Contractor shall provide all erosion control measures necessary to protect property and the environment. Include all erosion control measures as required by the most stringent of applicable sections of DNR Technical Standards or the Standard Specifications for Highway Construction.
- C. Perform all work in accordance with manufacturer's instruction where these specifications do not specify a higher requirement.
- D. Contractor shall comply with all the requirements of the erosion control plan, and if applicable, the WPDES Stormwater Discharge Permit for Erosion Control, including required monitoring and documentation.

3.2 GRADING AND EARTHWORK

- A. Install all temporary or permanent erosion control measures prior to any onsite grading or land disturbances.
- B. Clear only those areas designated for the placement of improvements or earthwork before placement of the final cover. Perform stripping of vegetation, grading, excavation, or other land disturbing activities in a logical sequence and manner which will minimize erosion. If possible, schedule construction for times of the year when erosion hazards are minimal.
- C. Do not clear the site of topsoil, trees, and other natural ground covers before the commencement of construction. Retain natural vegetation and protect until the final ground cover is placed.
- D. Temporary stockpiles are to be located greater than 25 feet from any roadway, parking lot, paved area, drainage structure, or channel.
- E. Provide temporary stabilization and control measures (seeding, mulching, covering, erosion matting, barrier fencing, etc.) for the protection of disturbed areas and soil piles which will remain uncovered for a period of more than 7 consecutive calendar days.
- F. Remove surplus excavation materials from the site immediately after rough grading. The disposal site for the surplus excavation materials shall also be subject to these erosion control requirements.

3.3 DRAINAGE

- A. Minimize water runoff and retain or detain on-site whenever possible so as to promote settling of solids and groundwater recharge.
- B. Convey drainage to the nearest adequate stormwater facility. Do not discharge water in a manner that will cause erosion or sedimentation of the site or receiving facility.
- C. Protect storm sewer inlets and catch basins in accordance with the erosion control plan, if provided, a log with the WDNR Technical Standards and PAL. If not specified, protect inlets with straw bale barriers, silt fencing, filter basket, or other equivalent methods approved by the Engineer which provide the necessary erosion protection.
- D. Divert roof drainage and runoff from all areas upslope of the site around areas to be disturbed or channel them through the site in a manner that will not cause erosion.
- E. Ditch checks are to be provided in swales or ditches to reduce the velocity of water in the channel. Construct in accordance to DNR Technical Standards and PAL.
- F. Minimize the pumping of sediments when dewatering. Discharge to a sedimentation basin/trap or sedimentation vessel to reduce the discharge of sediments. Do not discharge water in a manner that will cause erosion or sedimentation of the site or receiving facility. Refer to section 31 23 19 Dewatering for specifications.

3.4 TRACKING CONTROL

- A. Construct and maintain tracking pads in accordance with the Technical Standards. Provide each entrance to the site with a stone tracking pad at least 50 feet in length with a minimum thickness of 12 inches. The tracking pad shall be the full width of the egress point. Inspect tracking pads on a daily basis and replace aggregate when no longer effective.
- B. If necessary, provide a crushed aggregate paved parking area.

- C. If applicable, wash water shall be discharged to sedimentation basins, sedimentation vessels, or other such control areas.

3.5 MAINTENANCE

- A. Inspect all erosion control measures within 24 hours of the end of each rainfall event that exceeds 0.25", or daily during period of prolonged rainfall, or weekly during periods without rainfall. Immediately repair and/or replace any and all damaged, failed, or inadequate erosion control measures.
- B. Re-apply soil stabilizers, tackifiers, polymers and anionic polycrylamides as needed to prevent erosion of exposed soil.
- C. Maintain records of all inspections and any remedial actions taken.
- D. Maintain stockpile stabilization measures as necessary after rainfall events and heavy winds. Replace tarps, re-seed, and reapply mulch, tackifiers and stabilizers as necessary.
- E. Remove sediment from stormwater and erosion control structures, basins and vessels as necessary.
- F. Repair or replace damaged inlet protection.
- G. Replace or supplement stone tracking pads with additional stone when they become ineffective.
- H. Remove any sediment reaching a public or private roadway, parking lot, sidewalk, or other paved. Do not remove tracked sediments by flushing. Completely remove any accumulations not requiring immediate attention at least once daily at the end of the workday.
- I. Frequently dispose of all waste and unused construction materials in licensed solid waste or wastewater facilities. Do not bury, dump, or discharge, any garbage, debris, cleaning wastes, toxic materials, or hazardous materials on the site, on the land surface or in detention basins, or otherwise allow materials to be carried off the site by runoff onto adjacent lands or into receiving waters or storm sewer systems.

3.6 PROJECT CLOSEOUT

- A. It is the contractor's responsibility to remove all the erosion control for the site once 70% vegetation coverage is achieved. If any disturbed areas exists after removal, it shall be drill seeded and crimp mulched or otherwise stabilized.

END OF SECTION

SECTION 31 32 50 - WATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for furnishing, hauling, and applying water required for compaction of embankments, backfills, sub-grade, and for landscaping, dust control, and other construction operations.

PRODUCTS

1.3 WATER

- A. If water supply is from a hydrant and required by the Village, the Contractor shall supply an approved and calibrated water meter to measure water usage and be responsible to pay all costs related to water usage. The cost of water shall be charged at the current Village and County rate.
- B. Water applied for moisture density control, pre-wetting, and as dust palliative shall be free of debris, organic matter, and other objectionable substances.
- C. Water for landscaping shall be free from oils, acids, salts or any substance that may be harmful to plant life.
- D. When the water source proposed for use by the Contractor is not known, the Contractor shall provide an analysis of water samples from an approved testing laboratory. The analysis shall be provided to the Project Manager prior to use.

PART 2 - EXECUTION

2.1 APPLICATION

- A. Pre-wetting: Pre-wetting material in excavation areas prior to removal for placement in embankments will be allowed as approved by the Project Manager. Prior to excavation the Contractor shall drill, bore or dig test holes to the full depth of excavation to determine moisture requirements. The contractor will identify and confirm with the Project Manager the areas for pre-wetting, including equipment to be used for the pre-wetting operations.
- B. Landscape Watering: The Contractor shall provide water for seeding, herbicide treatment, maintenance operations including watering during warranty periods or any other landscape related activities when called out on the Contract Drawings or Specifications.
- C. If overwatering occurs during any of the above operations, de-water at no additional expense to the Village.

END OF SECTION 31 32 50

SECTION 32 12 16. 13 - PLANT MIX ASPHALT PAVING

PART 1 GENERAL

1.01 SCOPE

- A. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide and construct the paving and surfacing as provided for in these specifications and on the drawings.

1.03 REFERENCES

- A. Wherever WisDOT or SSHSC appears in this specification it shall be construed to mean the pertinent sections of the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction (SSHSC), current edition, and all supplemental and interim supplemental specifications, as they may pertain.
- B. Applicable provisions of Division 1 shall apply to this section.

PART 2 MATERIALS

2.01 HOT MIX ASPHALTIC (HMA) PAVEMENT

- A. Provide HMA pavement Type 4 LT 58-28 S and 3 LT 58-28 S conforming to the requirements of WisDOT SSHSC Section 450 and Section 460. Utilize the same material type throughout the paving operation unless noted elsewhere on the plans. Conform all materials provided under this section to the requirements of WisDOT SSHSC, Section 455 and as revised in any current Supplemental Specifications.

PART 3 EXECUTION

3.01 HOT MIX ASPHALT (HMA) PAVEMENT

- A. Conform all work under this section to WisDOT SSHSC, Section 450 and Section 460. Provide HMA binder 3 LT 58-28 S with minimum thickness of 2.25 inches. Provide HMA surface course 4 LT 58-28 S with minimum thickness of 1.75 inches.

3.02 PAVEMENT REPAIRS

- A. Sawcut all pavement surfaces to neat and straight lines at the limits of removal by a two-step method. Limit the initial pavement removal to the immediate area of the proposed work. Full depth sawcutting is not required for this phase of removal. After the work is completed, make a full depth sawcut to neat and straight lines outside the widest point of pavement disruption. Sawcut the lines of the repair parallel to existing joints, or parallel to or perpendicular to pavement edges so as to form a neat patch. Carefully remove all remaining pavement within the sawcut area to the lines of the sawcut. Do not disturb the existing base materials between the area disturbed by the work and the sawcut line by the sawcutting, pavement removal, or pavement replacement processes.
- B. Remove all walks, curbs, and other jointed paving by sawcutting at the nearest joint beyond the limits of removal.
- C. Adjust all inlets, manholes, catch basins, valve boxes, and other such castings to match new finished grade as incidental work.

END OF SECTION

SECTION 32 1313 - PORTLAND CEMENT CONCRETE

PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. Exterior concrete for:
 - 1. Concrete sidewalks
 - 2. Ramps
 - 3. Reinforcement
 - 4. Surface finish
 - 5. Curing

1.2 QUALITY ASSURANCE:

- A. Perform work in accordance with ACI 301.
- B. Obtain materials from same source throughout.

1.3 SUBMITTALS:

- A. Proposed Mix Design for review prior to commencement of work.

1.4 TESTS:

- A. Submit proposed mix design for review prior to commencement of work.
- B. Test Reports: Reports in accordance with requirements specified in the "Field Quality Control" section of this specification.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS:

- A. Portland Cement:
 - 1. Type I conforming to ASTM C 150, "Standard Specification for Portland Cement".
 - 2. Normal Weight Aggregates:

Conforming to ASTM C 33 "Standard Specification for Concrete Aggregate." Aggregates not complying with this standard may be used providing it can be shown by special test or a record of past performance that these aggregates produce concrete of adequate strength and durability.

B. Fine aggregate:

1. Clean, natural sand, free from loam, clay lumps or deleterious substances.
2. Fineness modulus of sand shall have a minimum value of 2.3 and a maximum value of 3.0.

C. Coarse aggregate:

1. Crushed and graded limestone containing no clay, mud, loam or foreign matter.
2. Limit to 1% of the coarse aggregate by weight the amount of chert with a specific gravity less than 2.40 in exposed concrete.
3. Coarse aggregate shall be nominal maximum sizes of 3/4", conforming to ASTM C33, Table 2.

D. Water:

1. Shall be clean and free from deleterious materials.

E. Curing Compounds:

1. Conforming to ASTM C-309, Type 1, Class A, clear or translucent without fugitive dye; Wax or saponifiable resin types are not approved.
2. Curing compounds shall exceed the moisture retention requirements of ASTM C309, when tested in accordance with ASTM C156 at the maximum coverage rate recommended by the manufacturer.
3. Approved Products:
 - a. "Masterseal" by Master Builders
 - b. "1100 Clear" by W.R. Meadows
 - c. "Tri-Kote 26" by T. K. Products

F. Reinforcement:

1. See plan details

G. Provide concrete mix with the following properties:

1. Compressive Strength: 4,000 psi at 28 days
2. Slump: 2" to 4"
3. Maximum water to cementitious material (cement plus fly ash) ratio: 0.45.

4. Minimum cement plus fly ash content: 520 lbs. per cubic yard
5. Total air content required (air-entrained and entrapped air): 6%.

Accessories:

6. Preformed Joint Filler: ASTM D1751, asphalt impregnated fiber board. Provide filler throughout the slab depth and of 1/2" thickness.

PART 3 - EXECUTION

3.1 GENERAL:

- A. Place base material meeting requirements of Section 305 of Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin Department of Transportation Division of Highways.
- B. Compact base material meeting Special Compaction Requirements of Section 305 of Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin Department of Transportation, Division of Highways.
- C. Remove surplus material from site and dispose of in a legal manner.

3.2 INSPECTION:

- A. Verify compacted granular base is ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.
- C. Beginning of installation means acceptance of existing conditions.

3.3 PREPARATION:

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Notify Construction Manager a minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING:

- A. Place and secure forms to correct location, dimension, and profile.
- B. Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

3.5 REINFORCEMENT:

- A. Place reinforcement at top third height of slabs-on-grade.

- B. Interrupt reinforcement at all joints.

3.6 FORMED JOINTS:

- A. Place expansion joints in sidewalks every 400 square feet with a maximum 40 ft. o.c. spacing.
- B. Place expansion joints in curb and gutter at 40 ft. o.c.
- C. Place expansion joints between curbs and walks.
- D. Place joint filler in expansion joints and between curbs and walks, between paving components and building, and at catch basins, manholes, and other appurtenances. Recess top of filler 1/2 inches for sealant placement.
- E. Provide scored or sawn control joints. Joints shall be at right angles to the edges of work.
 - 1. Where walks are wider than 8'-0" provide longitudinal joints as directed.
 - 2. Space control joints at 5 foot intervals for sidewalks.
 - 3. Space control joints at 10 feet intervals for curbs.
- F. Align curb, gutter, and sidewalk joints.
- G. Place construction joints at the end of all pours and at locations where placement operations are stopped for more than 1/2 hour. If the construction joint will also be an expansion joint, dowel and sleeve the reinforcement.

3.7 PLACING CONCRETE:

- A. Place concrete in accordance with ACI 301 and as specified in Division 03.
- B. Place concrete in accordance with ACI 301.

3.8 FINISHING:

- A. After striking off and consolidating concrete, smooth the surface by screeding and floating.
- B. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture.
- C. Provide positive slope on concrete surfaces to provide drainage.
- D. After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous, smooth finish.
- E. Work edges of walks and joints with a 1/4" radius edging tool and a 4" wide smooth troweled surface at edges; provide broom finish on remainder of surface.
- F. After completion of floating and when excess moisture or surface sheen has disappeared, complete surface finishing by drawing a fine-hair broom across the concrete surface,

perpendicular to the line of traffic. Repeat operation if required to provide a fine line texture acceptable to the A/E.

3.9 CURING/PROTECTION:

- A. Use curing methods and provide protection as required.
- B. Apply Curing Compound uniformly in continuous operation by power-spray or roller in accordance with manufacturer's instructions.
 - 1. Recoat areas subjected to heavy rainfall occurring within 3 hours after initial application.
 - 2. Maintain continuity of coating and repair damage during curing period.
- C. Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury.
- D. Exclude traffic from concrete for at least 14 days after placement. When construction traffic is permitted, maintain the work as clean as possible and remove surface stains and spillage of materials as stains and spillages occur.

3.10 FIELD QUALITY CONTROL:

- A. Materials and operations shall be tested and inspected as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the owner for final acceptance.
- B. Testing of Portland Cement Concrete shall be performed by an independent testing laboratory appointed and paid for by the Contractor. The Contractor will pay for costs of additional testing required due to improperly performed work. All test reports shall be provided to Architect and Owner.
- C. Testing agencies shall meet the requirements of "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", ASTM E 329.
- D. The following testing services shall be performed by the testing agency and shall be paid for by the Contractor.
 - 1. Secure composite samples in accordance with "Standard Method of Sampling Fresh Concrete," ASTM C 172.
 - 2. Mold and cure four cylinders from each test required in accordance with "Standard Method of Making the Curing Concrete Test Specimens in the Field," ASTM C 31.
 - 3. Test cylinders in accordance with "Cylindrical Standard Test Method for Compressive Strength of Concrete Specimens," ASTM C 39. Two cylinders shall be tested at 28 days for acceptance and one shall be tested at 7 days and one at 14 days for information.
 - 4. Make one strength test for each 50 cubic yard or 5000 square feet of wall or floor surface or fraction thereof, of each mix design of concrete placed in any one day.

5. A record shall be made by a representative of the General Contractor of the delivery ticket number for the particular load of concrete tested and the approximate location in the work at which each load represented by a strength test is deposited.
 6. Determine total air content of normal-weight concrete sample for each strength test in accordance with "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method," ASTM C231 or "Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method", ASTM C173.
 7. Submit one copy of all test data to Construction Manager, Concrete Supplier, and Owner within 3 days of tests.
- E. If testing indicates the work does not meet specified requirements, concrete shall be removed and replaced at no additional cost to the Owner.

END OF SECTION

SECTION 32 17 23 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section consists of providing all work, materials, labor, equipment, and supervision necessary to provide and install pavement markings as provided for in these specifications and on the drawings.

1.2 RELATED WORK

- A. Applicable provisions of Division 01 govern work under this Section.

1.3 SUBMITTALS

- A. Submit the manufacturer specifications for each pavement marking. The submittal for each material shall include the following at a minimum:
 - 1. Pavement Marking Material and Manufacturer
 - 2. Color and Batch Number
 - 3. Date Manufactured (Material more than one year old will not be accepted)
 - 4. Manufacturer Name and Address

PART 2 - MATERIALS

2.1 PAVEMENT MARKINGS

- A. Furnish paint pavement markings conforming to WisDOT Section 646.2 as specified in the drawings.
- B. Paint markings shall be the color yellow for all pavement markings.

PART 3 - EXECUTION

3.1 PAVEMENT MARKINGS

- A. Preparing The Pavement Foundation (Sub-Grade):
 - 1. Prepare surface to receive markings and install them in accordance with WisDOT Section 646.3.
 - 2. Apply pavement markings at the locations and to the dimensions and colors as shown on the drawings. If not otherwise specified, marking lines shall be yellow and have a minimum width of 4 inches.
 - 3. Apply pavement markings at a rate per the manufacturers recommended application rate based on the temperature and surface material.

END OF SECTION

SECTION 32 90 00 - GENERAL LANDSCAPE

PART 1 - GENERAL

1.01 SUMMARY

Furnish all trees, shrubs, and other plant materials, labor equipment, and non plant materials required to complete installation of planting indicated on the landscape drawings and details. Furnish all soil preparation, fertilizer, soil mulching, trees, shrubs, groundcovers, sodding, bed mulching, labor and equipment required to landscape all areas as indicated on the landscape drawings.

Work in this Section includes, installation of trees, shrubs, perennials, annuals, ornamental grasses, sedges, sodding of lawns, installation of mulch materials and mitigation of areas damaged by construction activities performed under this contract.

A. Section Includes

Installation of trees, shrubs, ornamental grasses, sedges, perennials, turf, seeding, installation of mulch materials and mitigation of areas damaged by construction activities performed under this contract.

B. Owner Furnished Items

None

C. Permits

1. Contractor will be responsible for obtaining all necessary permits required for installation of landscape.
2. Contractor shall know, understand, and comply with all watering restrictions for any temporary or permanent irrigation.
3. Permits may be necessary if restrictions are in effect.

1.02 REFERENCES

A. Refer to Drawings

1.03 DEFINITIONS

- A. Subgrade: The final elevation of material supporting additional material above it.
- B. Finished Grade: The final elevation of the upper most surface material. (sod shall be top of thatch layer.)

1.04 SUBMITTALS

A. Product Data

Submit product data sheets for each of the following items. Submittals must be made prior to commencing any activities.

1. Compost
2. Seed
3. Landscape boulders
4. Wood mulch
5. Tree tube
6. Any plant substitutions that deviate from the plans
7. All other items noted on the plans

B. Samples

Submit physical samples of each of the following materials for approval. All samples shall be submitted in a one quart, clear, plastic bag (Ziploc type) or appropriate container. Submittals must be made prior to commencing any activities. All samples shall be clearly labeled with the following information.

1. Project Name
2. Material name as shown on plans and specifications
3. Supplier or distributor's name
4. Supplier or distributor's product name and/or order number
5. Required samples are as follows
 - (a) Shredded hardwood Mulch
 - (b) Compost

C. Supplier list

A single list of all material suppliers for plant material, and all related landscape and irrigation (if installed) materials to complete the work in this section and related sections. List must be submitted prior to commencing any activities.

D. Construction Schedule

Prior to beginning installation of the landscape, the Contractor is to submit a project construction schedule to the Owner's Representative for approval. The schedule should include the areas and types of construction to be undertaken and the sequence which will be used to accomplish the completion of the project. Schedule must be submitted prior to commencing any activities. This schedule shall clearly identify proposed timing for seeding and planting.

E. Certificates for Inspections of Materials

1. All State, Federal, or other inspection certificates shall be submitted to the Owner's Representative prior to acceptance of the plant material along with other information showing the source or origin.
2. Current grower or nursery certifications indicating that all contractor supplied plant material is healthy, vigorous, and free from insect pests, plant diseases, and injuries

F. Contract Closeout Submittals

1. Operation and Maintenance Manuals
2. At the completion of the work, furnish written maintenance instructions to the Owner's Representative for maintenance and care of the landscaping. Instructions shall include directions for irrigation (if installed), weeding, pruning, fertilization, and spraying, as required for continuance of proper maintenance through a full growing season and dormant period.
3. Contractor shall also furnish an operation manuals for all equipment, provided by the contractor.
4. Guarantee and Warranty
5. At completion of work, furnish written guarantee, and warranty, to the Owner based on the requirements of this section.

1.05 QUALITY ASSURANCE

A. Reference Standards

1. U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and equal in quality to standards for Certified Seed.
2. Requirements for measurements, grading, branching, quality, and the balling and burlapping of plants listed in the plant list shall follow the current issue of American Standard for Nursery Stock issued by the American Association of Nurserymen, Inc. (ANSI-Z 60.1-1990)
3. Plants shall equal or exceed the measurements specified in the plant list, which are minimum acceptable sizes. Plants shall be measured before pruning with branches in normal position. Any necessary pruning shall be done at the time of planting.

B. Quality of Materials

1. All materials shall be subject to inspection and approval. The Owner's Representative reserves the right to reject at any time or place, prior to acceptance, the work and all materials which in the Owner's Representative's opinion fails to meet these specification

requirements.

2. Inspection is primarily for quality, however, other requirements are not waived even though visual inspection results in approval. Materials may be inspected where growing but inspection at the place of growth shall not preclude the right of rejection at the site. Inspection may be made periodically during installation of materials, at completion, and at the end of guarantee periods by the Owner's Representative. Plants shall have a habit of growth that is normal for the species. They shall be healthy, vigorous, and free from insect pests, plant diseases, and injuries. All plant material shall be inspected stock conforming to all State and Federal Regulations.
3. Plant material shall not exhibit signs of accelerated growth.

C. Vandalism

The Contractor will not be responsible for malicious destruction of plantings after final acceptance of the project. He will, however, be responsible for replacement of vandalized materials stored but not yet installed, and vandalized material prior to final acceptance. All cases of vandalism shall be promptly reported to the Owner. The Contractor shall inform the Owner in writing if additional protection must be installed to protect the landscaping from damage after installation.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping

1. Deliver fertilizer to site in original unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to State law. Notify Owner's Representative of delivery schedule in advance so material may be inspected upon arrival at the job site.
2. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site. Provide copies of delivery receipts for materials to be incorporated into the construction to the Owner's Representative as the deliveries are made. Materials to be accounted for include: fertilizers, soil amendments, peat moss, manure, grass seed, plant tabs, and mulches.
3. Plants shall be bare root with limbs bound, properly wrapped and prepared for shipping in accordance with recognized standard practice. The root system shall be kept moist and plants shall be protected from adverse conditions due to climate and transportation, between the time they are dug and actual planting.
4. Each plant shall be identified by means of a grower's label affixed to the plant. The grower's label shall give the data necessary to indicate conformance to specifications. Use durable waterproof labels with water resistant ink which will remain legible for at least 60 days. Notify the Owner's Representative prior to delivery of plant materials to the site so that a pre-planting inspection may be made or indicate delivery schedule in advance so plant material may be inspected upon arrival at job site, whichever is more appropriate.
5. Do not drop plants. Do not lift plants by the trunk, stems, or foliage. The roots of the plant shall be natural, and the plant shall be handled by the base at all times. All plants shall be protected at all times from drying out or other injury. Minor broken and damaged roots shall be pruned before planting.

B. Acceptance at Site

1. Remove unacceptable plant material immediately from job site.
2. Major damage shall be cause for rejection.
3. No bare root plan shall be accepted if noticeable decay, disfiguration, or drying is evident.

C. Storage and Protection

1. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than four (4) hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by

- setting stock on ground and cover with soil, peat moss, or other acceptable mulch material.
- 2. Keep roots moist at all times. Do not allow roots to dry out.
- 3. Protect all existing and newly planted trees, shrubs, and groundcover within the areas of construction and related excavation as herein specified. Provide suitable barricades and/or fences as required.

1.07 PROJECT/SITE CONDITIONS

- A. The Contractor must examine the subgrade upon which work is to be performed, verify subgrade elevations, observe the conditions under which work is to be performed, verify suitability of the soil and notify the Owner's Representative in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Owner's Representative. Commencement of work shall mean acceptance of the site conditions.
- B. Existing Conditions
 - 1. The site will be provided to the contractor within ± 0.1 foot of finish grades.
 - 2. Utilities

Determine location of underground utilities and perform work in a manner which will avoid possible damage. Do not permit heavy equipment such as trucks, rollers, or bulldozers to damage utilities. Hand excavate when called for to minimize the possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned. Any damage to utilities that may result in spite of protective measures must be completely corrected and repaired by the Contractor at no additional cost to the Owner.

1.08 SEQUENCING & SCHEDULING

- A. Planting Schedule

Schedule each type of landscape work required during the normal season for such work in the area of the site. Establish dates for each type of work and establish a completion date. Correlate work with specified maintenance periods to provide maintenance until accepted by the Owner. Do not depart from the accepted schedule, except with written authorization. Submit request to the Owner's Representative for changes in the planting schedule. When delays in the planting schedule are unavoidable, include documentation of the reason for delay. Plant trees and shrubs during normal season for such work in the location of the project.
- B. Coordination With Lawns

Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to the Owner's Representative. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

1.09 WARRANTY & GUARANTY

- A. Guarantee trees, shrubs, groundcovers and all plant material for a period of two years from the date of substantial completion against defects not resulting from neglect of Owner, or abuse and damage by others.
- B. For a period of one year after acceptance of work, at no additional cost to the Owner, the Contractor is to replace any plants that are dead, or that are in unhealthy or unsightly condition, or have lost their natural shape due to dead branches or excessive pruning. Inadequate maintenance by the Owner shall not be cause for replacement. All replacement planting is to be done no later than the succeeding season.
- C. Replacement plants shall be of the same variety and size or larger as originally specified in the plant list. Plants shall be planted as originally specified. All areas damaged by planting or replacement operations shall be fully restored to their original condition as specified. Remove all dead or defective plant material from the site immediately.

- D. A one year warranty shall also apply to the plants replaced at the first warranty walk-through (which occurs one year after substantial completion).

1.10 MAINTENANCE

- A. Begin interim maintenance period immediately after planting of landscape materials, and after planting of lawn areas, and continue interim maintenance until landscape work is deemed substantially complete and accepted by the Owner or Owner's Representative.
- B. The maintenance period, as specified on the bid form, will commence when all areas have received substantial completion. Large or phased projects may require adjustments to this date. This can be negotiated with the owner and Owner's Representative after installation has begun.
- C. Meet with the Owner prior to final acceptance, and prior to the termination of the maintenance period, to go over maintenance requirements of the project. Note that information conveyed to the owner shall be consistent with the maintenance instructions provided by the contractor, as part of the contract close out submittals.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Mulch
 - 1. Shredded hardwood Mulch
 - 2. Compost
- B. Stakes and Guys
 - 1. Stakes – 6' metal t-posts or 6' wood posts
 - 2. Guys – Two releasable UV treated zip ties
- C. Tree Wrapping
 - 1. Tree tubes – Nested 100% recycled polyethylene seamless tube with permanent venting
- D. Trees, Shrubs, Ornamental Grasses, Sedges, and Flowers
 - 1. Provide nursery grown trees, shrubs, ornamental grasses, Sedges, and flowers except as otherwise indicated, grown in a recognized nursery in accordance with good horticultural practice, with healthy root systems developed by transplanting or root pruning. Provide only healthy vigorous stock, free of diseases, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Plants grown in Hardiness Zones 2,3,4, and 5 only, will be accepted. Hardiness Zones are defined in U.S. Department of Agriculture publications. Grower's certificates may be required when doubt exists as to the origin of the plant material.
 - 2. Provide trees, shrubs, ornamental grasses, sedges, and flowers true to name and variety established by the American Joint Committee on Horticultural Nomenclature "Standardized Plant Names", Second Edition, 1942.
 - 3. Provide trees, shrubs, ornamental grasses, sedges, and flowers of the size shown or specified in the plant list and in accordance with the dimensional relationship requirements of ANSI Z60.1 for the kind and type of plant material required. Plant material of larger than specified size may be used, in which case the sizes of the root balls will be increased proportionately.
 - 4. Label each tree and shrub with a securely attached waterproof tag bearing legible designation of botanical and common name and size.
 - 5. Where formal arrangements or consecutive order of plants are shown, select stock for uniform height and spread, and label with numbers (if necessary) to assure symmetry in planting.
 - 6. Provide plant material complying with the recommendations and requirements of ANSI Z60.1 "Standard For Nursery Stock" and as further specified.
- E. Deciduous Trees
 - 1. Provide trees as shown on the plan's plant list.

2. Where shade trees are required, provide single stem trees with straight trunk and intact leader, free of branches to a point.
 3. Where small trees of upright or spreading type are required, provide trees with single stem, branched or pruned naturally according to species and type, and with the relationship of caliper and branching recommended by ANSI Z60.1, unless otherwise shown.
 4. Where shown as "bush form" provide trees with 3 or more main stems starting close to the ground in the manner of a shrub.
 5. Where shown as a "clump form" provide trees with 3 or more stem starting from the ground.
- F. Deciduous Shrubs and Groundcovers
1. Provide deciduous shrubs with not less than the minimum number of canes required by ANSI Z60.1 for the type and height of shrub specified.
 2. Plants furnished in containers shall have been grown in pots, cans, or baskets long enough to have sufficient roots to hold earth together intact after removal from container, without being root bound.
- G. Coniferous and Broadleaf Evergreens
1. Provide evergreens of the size shown. Dimension indicates minimum spread for spreading and semi-spreading type evergreens and height for all other types such as globe, dwarf, cone, pyramidal, broad- up-right, and columnar.
 2. Provide evergreens with well balanced form complying with requirements for other size relationships to the primary dimension shown.
 3. Trees shall exhibit consistent growth periods, and shall not exhibit signs of accelerated growth.
 4. Foliage shall have a good intense color.
 5. Trees shall contain a central dominant leader with evenly spaced branches. Plants containing multiple central leaders will be rejected.
- H. Requirements for Container Grown Stock
1. Where specified as acceptable, provide healthy, vigorous well rooted shrubs or ornamental grasses established in the container in which they are sold.
 2. Perennials, sedges, and ornamental grasses provided in containers shall have well developed root masses (without being root bound) and should display an appropriate amount of foliage for the time of year in which they are being planted. Cutting back of perennials and grasses for fall planting is acceptable assuming a portion of the plant is visible and cutting does not damage the growing portions of the plant.

PART 3 - EXECUTION

3.01 EXAMINATION

Contractor shall inspect the site with the owner and/or Owner's Representative prior to beginning any activities on site. The contractor shall provide a written report of any discrepancies that would interfere with their scope of work, or would delay progress on the project.

3.02 INSTALLATION/APPLICATION/ERECTION

- A. Proceed with and complete the landscape work as rapidly as portions of the site become available, working within the seasonal limitations for each kind of landscape work required.
- B. Cooperate with any other Contractors and trades which may be working in and adjacent to the landscape work areas. Examine drawings which show the development of the entire site and become familiar with the scope of all work required.
- C. Final Plant Locations
 1. Stake location of individual trees, for approval by Owner's Representative, prior to planting or excavating.
 2. If a new tree or shrub relocation is necessary due to interference with underground piping or wiring, the Contractor shall notify the Owner's Representative and receive approval of a new location.

3. The Owner's Representative must approve the precise location of all plants prior to pit excavation and installation.
4. Make minor adjustments as requested by the Owner's Representative, or as necessary to avoid conflicts with sprinkler line locations.

D. Excavation For Planting

1. Where rubble fill is encountered, notify Owner's Representative and prepare planting pits properly by removal of rubble or other acceptable methods.
2. If rock, underground construction work, or other obstructions are encountered in excavation for planting of trees or shrubs, notify the Owner's Representative. If necessary, new locations may be selected by the Owner's Representative.
3. If subsoil conditions indicate the retention of water in planting areas, as shown by seepage or other evidence indicating the presence of underground water, notify the Owner's Representative before backfilling.
4. Tree pits shall be dug with flat bottoms and vertical sides.
5. The contractor will be responsible for demonstrating to the Owner's Representative that planting pits will have adequate drainage. This shall be performed by digging sample holes throughout the site and filling them with water. Holes must drain within twenty-four hours to be acceptable. Pits that do not drain shall be provided with twelve inch (12") diameter X thirty-six inch (36") deep auger holes (one per tree pit) to be filled with 1 1/2" gravel. A change order will be issued if the Owner's Representative determines drain holes shall be installed.

E. Setting and Backfilling

1. Pit shall be at least twice as wide as the container.
2. Set bare root tree, plumb and in the center of pit or trench per the detail on the plans.
3. After planting, the Contractor shall water each plant regularly until final acceptance per the notes on the plans.
4. Set container-grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with a metal cutter, and remove bottoms of wooden boxes before setting. Carefully remove cans and sides of wooden boxes after partial backfilling so as not to damage root balls.
5. For plantings in non-turf areas, provide berm around the edge of excavations to form shallow saucer to collect water and to hold mulch.

F. Mulching

1. Fine grade all planting beds to be mulched allowing for full depth of specified mulch.
2. Place specified mulch evenly over all areas at depth indicated on plans.
3. Rake and feather finish grade of mulch level and 1/2" below adjacent edger surfaces.
4. Make sure mulch is at full depth at adjacent walks and paved surfaces and that mulch doesn't protrude above these surfaces.
5. Mulch a 36" diameter ring around all trees in turf areas with specified depth of wood mulch, after irrigation areas have been watered in.
6. All trees and shrubs in native areas are to have a mulch ring equal to the diameter of the planting pit. Mulch shall be a uniform three inches in depth. Do not remove saucer (or berm) around plants in native areas when mulching.

G. Pruning

1. Prune, thin out, and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread.
2. Do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any.
3. Prune shrubs to retain their natural character and shape, and to accomplish their use in the landscape design.
4. Required shrub sizes are the size after pruning.

5. Remove and replace excessively pruned or deformed stock resulting from improper pruning.

H. Tree tubes

1. Tree tubes shall remain in place and removed only at Client's direction.

3.03 FIELD QUALITY CONTROL

- A. When all the landscape work is completed, the Owner's Representative, shall upon seven (7) calendar days advance notice, make an inspection of the landscape work to determine if the work is complete. The Owner's Representative shall prepare a punch list of items improperly installed, inadequately sized or otherwise deficient based on the findings of his inspection. The punch list shall be completed not more than seven (7) working days after the field inspection. When the Contractor has remedied all deficiencies and completed all items on the punch list, the Contractor shall request another inspection by the Owner's Representative to determine whether the deficiencies have been adequately corrected. Once the punch list items have been corrected and re-inspected, the Owner's Representative shall issue a written certificate to the Owner who will then respond to the Contractor in writing formally accepting the work and beginning the warranty and guarantee period.
- B. Additional landscape inspections shall be conducted upon request by the Owner's Representative, to determine the condition of the work at the completion of the guarantee period.
- C. The required maintenance instructions shall be forwarded to the Owner's Representative prior to the final acceptance to inform the Owner of any maintenance responsibilities that would be required for the project.

3.04 ADJUSTING AND CLEANING

- A. During landscape work, store materials and equipment where directed.
- B. Keep pavements clean and work areas in an orderly condition.
- C. Protect landscape work from loss, damage, and deterioration during storage, installation, and maintenance periods.
- D. Protect from unauthorized persons (trespassers), as well as from operations by other Contractors and tradesmen and landscape operations.
- E. At the time of the final inspection of the work and before the issuance of Final Acceptance, all paved areas shall be thoroughly cleaned by the Contractor by sweeping, and washing. All construction equipment and excess materials shall have been removed and any debris or rubbish shall have been removed from the site.

END OF SECTION

SECTION 32 90 12 - LANDSCAPE MAINTENANCE

PART 1 - GENERAL

1.01 SUMMARY

- A. This section provides guidance on long term maintenance and care for landscape areas.
- B. The contractor will accomplish irrigation management (if included), fertilization, pruning, weeding, pesticide applications, bed cultivation, mowing, edging and litter removal in landscape areas. Clean up of walkways, trails, and open space within the project limits shall also be included.
- C. Unit Prices
The contractor will furnish all materials, equipment, supplies and personnel necessary to perform the services contained herein.
- D. Project Communication
 - 1. The Contractor shall have one person designated as the Contract Manager. That person shall be available for a meeting and/or walk through of the property, at least once each month, upon the request of The Owner.
 - 2. It is expected that the Contractor will advise The Owner or its representatives, of all actions the Contractor reasonably believes are prudent, necessary, or beneficial, to improve and maintain the appearance and health of the landscape at the property.

1.02 QUALITY ASSURANCE:

- A. All work shall be performed to the highest standards of horticultural excellence and shall be in accordance with accepted standard practices. All work shall be performed in accordance with all applicable laws, codes, ordinances and regulations of all local, state and federal government agencies, and it will be the responsibility of the contractor to obtain at its cost all necessary certificates, permits and licenses required by such agencies.
- B. Contractor shall maintain a weekly landscape maintenance log, indicating services performed. Submit reports weekly to the Owner's Representative using e-mail.
- C. Contractor shall assume all responsibility for plant material or turf which is damaged or stressed in any way as a result of poor maintenance. Contractor will assume all cost associated with replacement of damaged plant material.

PART 2 - PRODUCTS

Refer to construction documents or record drawings for material specifications.

PART 3 - EXECUTION

3.01 TREE MAINTENANCE

- A. Pruning
 - 1. The following will be used as guidelines for pruning maintenance on trees. Pruning will be accomplished in the early spring and late winter. Pruning in this agreement will be initiated for the following.
 - (a) Plants too close to a building, walkway, fence, power line or any tree limiting visibility shall be pruned appropriately to reduce the obstructing branches.
 - (b) Removal of diseased or insect infested or weak growth portions of the tree.
 - (c) Pruning to remove storm damage or other mechanical injury. Pruning to shape or remove excess unwanted growth or winter die back.
 - (d) Prune trees to select and develop permanent scaffold branches that are smaller in diameter than the trunk or 48 inches and radial orientation so as not to overlay one another; to eliminate diseased or damaged growth; to eliminate narrow V-shaped branch forks that lack strength; to reduce toppling and wind damage by thinning out crowns; to maintain growth within space limitations; to maintain a natural appearance; to

balance crown with roots. Under no circumstances will stripping of lower branches ("raising up") of young trees be permitted. Lower branches shall be retained in a "tipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk). Lower branches can be cut flush with the trunk only after the tree is able to stand erect without staking or other support.

- (e) The primary pruning of deciduous trees shall be done during the dormant season. Damaged trees or those that constitute health or safety hazards shall be pruned at any time of the year as required.
 - (f) Coniferous trees shall be thinned out and shaped when necessary to prevent wind and storm damage.
- 2. Pruning for general clean-up of trees is required in the late winter or early spring prior to the activation of the irrigation system.
 - 3. Pruning specified as "normal maintenance" will include trees or tree limbs, that are up to twelve (12) feet tall using conventional pruning tools.
 - 4. The contractor must immediately contact the Owner concerning trees which may present a threat to the public safety. The Owner should be contacted so that the threat may be eliminated and a price negotiated for the repair.
 - 5. The contractor is not responsible to repair or replace any plant materials damaged or killed by vandalism or extreme conditions beyond the contractor's control, as reasonably determined by the Owner's Representative. Plant materials damaged or killed as the result of a contractor's actions or neglect will be replaced in kind at the contractor's expense.
 - 6. All pruning will be performed by qualified personnel may require supervision by an arborist if requested by the Owner.
 - (a) Final cuts on branch removal must be made just outside the flare of the branch base, not flush with the tree trunk.
 - (b) Limbs removed from a tree must be cut near a crotch. Bracing, cabling and lip bolting may be required in special instances.
 - (c) Damaged, dead or dying trees and shrubs will be removed immediately upon being observed by maintenance staff.
 - (d) Damaged trees or those which constitute health or safety hazards will be pruned or removed at any time of the year as required.
 - (e) Cost to remove and dispose of dead plant material is the sole responsibility of the contractor.
- B. Care of wounds
- 1. The contractor must take prompt action to repair any injuries that occur to plants and immediately initiate the repair. Repairs will be completed only by competent employees trained and familiar with repair techniques.
 - 2. Storm or severe wind injury must be addressed immediately after any storm to determine the extent of any plant related injuries.
 - 3. Bark may also be destroyed by animals, sunscald, mowers or vandalism. The contractor shall treat bark injuries according to the current industry standards.
 - 4. Tree paint shall not be used to treat wounds.
- C. Tree Tubes
- 1. Refer to the plans and General Landscape Section for proper tree tube sizes and installation.
- D. Fertilization
- 1. Do not fertilize bare root trees.
- E. Insecticide application:
- 1. All pine trees shall receive one application of approved insecticide to treat for and reduce the infestation of the Ips beetle.
 - 2. Any spray application shall be timed properly in order to minimize damage and maximize chemical effectiveness.
 - 3. Foliar insecticide spray shall be of a material approved by the Owner.

F. Mulching

Mulched tree rings will be well maintained. Additional mulch may be added to these only after the approval of the Owner, using the prices submitted in the supplementary bid schedule.

3.02 PLANTING BED CARE

A. Pruning

1. Prune shrubs, ground covers, and flowers to maintain a natural appearance. There are no plantings in which shearing is intended.
2. Cut back ornamental grasses to $\frac{1}{4}$ of their mature height in the spring during March. Remove and dispose of cuttings.
3. Cut back herbaceous perennials to the ground in March. Remove and dispose of cuttings.
4. Prune all dead, diseased, and dying branches.
5. Prune long uncharacteristic branches that detract from the shrub's overall form. Prune branches adjacent to bare spots to encourage full shrub growth.
6. Prune flowering shrubs within two weeks after flowering has ended (to prevent pruning of future flower buds).
7. Prune ground covers to maintain a neat, well kept appearance and to prevent ground covers from climbing shrubs.
8. Cut back taller growing herbaceous perennials when they become rangy in appearance.
9. Pinch back dead flower heads on a weekly basis to promote greater flowering.
10. Cut back bulbs after foliage has turned a 50-75% yellow and begun to fall off.
11. Prune shrubs too close to a building, walkway, fence, power line or any tree limiting visibility to reduce the obstructing branches.
12. Removal of diseased or insect infested or weak growth portions of the shrub.
13. Pruning to remove storm damage or other mechanical injury. Pruning to shape or remove excess unwanted growth or winter die back.
14. Shearing
 - (a) Never, unless a hazardous situation exists, and only after the approval by the Owner, will the contractor shear a shrub.
 - (b) Shearing is not a practice that helps maintain a native image and design.
 - (c) This shall exclude clump grasses, as shearing is the recommended method of pruning in the spring prior to re-growth.
15. Renewal pruning: overgrown shrubs usually are leggy, lacking foliage in the lower one-half to two-thirds due to shading from the top or non-flowering. This pruning activity should be accomplished during the dormant season pruning. Height reduction may be accomplished at the same time. This activity is accomplished by removing the oldest and weakest canes at or near ground line. All branches can be cut to the ground or one-third of the oldest branches can be removed every year.
16. Thinning shrubs: the contractor will remove the oldest canes each winter (canes over four (4) seasons old). Insignificant small shoots will be removed to the base or to the crotch of the plant.
17. Heading back: the contractor will head back isolated shoots which may cause the plants to become out of balance. Prune to the base of the branch or the crotch.

B. Fertilization

In April, fertilize all planting beds with 18-7-10 formulation, slow release fertilizer at the rate of 6 oz/1,000 sq. ft. Use a broadcast method for application of fertilizer. Do not fertilize bare root trees.

C. Mulching

Shrub bed areas will be well maintained at a depth of three inches. Additional mulch may be added to these only after the approval of the Owner, using the prices submitted in the bid schedule.

D. Weeding

1. Weeds represent the greatest threat to successful establishment of areas. Therefore, a vigorous, high level of weed control is necessary to maintain an attractive, healthy landscape.
2. Spot control weeds bi-weekly using chemical and/or mechanical means. Do not spray in windy weather. Use extra caution in application of chemicals to prevent overspray onto desired plant material.
3. Mechanical means are the preferred methods for removal of weeds.
4. Planting beds shall be inspected bi-weekly for weeds.
5. If spraying weeds, dead material shall be removed from planting beds immediately so as not to create tumbleweeds or unnecessary debris.

3.03 MANICURED TURF CARE

A. Mowing and Edging

1. Mowing shall occur on Thursdays with Friday being the alternate date in the event of rain.
2. The frequency of mowing may vary in the spring and fall due to seasonal weather conditions and growth rate of turf.
3. In the event the season is longer or shorter or if inclement weather prohibits safe operation of equipment on the regularly schedule mowing day, the mowing schedule shall be adjusted according to current conditions.
4. All turf areas shall be mowed weekly during the growing season to a height of no shorter than 2 to 3 inches. All turf areas shall be cut to the same height and shall be cross cut when feasible.
5. The mower blades or reels shall be sharpened and maintained to provide a smooth, even cut without tearing. The result shall be a uniform, level cut without ridges or depressions.
6. Do not use heavy mower in areas prone to rutting.
7. Do not leave tire marks on sidewalk.
8. Mowing shall be performed so that no more than one-third (1/3) of the grass blade is removed during each mowing.
9. Edging of walks and curbs will be performed every other mowing during the growing season using a steel bladed edger. All debris shall be removed from street and walks.
10. Manually trim around trees monthly ensuring that turf grows no closer than eighteen inches (18") to the tree trunk— a three foot diameter ring around each tree. This bare area should be a uniform circle using the trunk as a center point. This area should be mulched with the specified wood bark mulch.
11. Mow and Trim around trees (keeping mulch in saucers and beds), walls, fences, etc.,
12. All turf areas inaccessible to mowing equipment will be trimmed weekly as needed to maintain a neat, well-groomed appearance, (fence row areas, street lights, transformers, phone pedestals, etc.)
13. Trim growth around all lamp posts, drains and other permanent structures located on the turf on a weekly basis during the growing season.
14. Protect trees and shrubs from damage caused by trim lines. Replace all plant material killed or seriously injured by trim lines. Replace with plants of equal or better size and quality. Replace at no cost to Owner. Seriously injured is defined as when 30% or greater of the cambium layer of the trunk circumference has been removed by trim lines or when shrubs have been seriously deformed (in the opinion of the Owner's Representative).
15. Protect fences, buildings, and other structures from damage caused by mowers or trim lines.
16. Clippings on paved areas or crusher fine trails shall either be vacuumed or blown off and removed from walks and streets.
17. Excessive grass clippings should be removed as necessary.
18. Trash shall be picked up before each mowing.
19. If mowers cause damage or notice damage or over watering the area should be marked with marker flags or flagging tape. Observations should be reported to the site superintendant who will implement the necessary action.

B. Fertilization

1. In April, the turf shall be fertilized with quality slow release granular product intended to fertilize and control broad leaf weeds ("weed and feed"). Unless otherwise directed or the contractor has other suggestions use a 4-1-1 ratio of nitrogen to phosphorus to potassium with 25% to 50% slow release nitrogen from sulfur coated urea (SCU) at a rate of one pound of nitrogen per 1,000 square feet.
2. In late September, the turf shall be fertilized to stimulate root growth using a granular urea fertilizer (46-0-0) at a rate of two pounds of nitrogen per 1,000 square feet, Unless otherwise directed or the contractor has other suggestions.
3. Fertilizer shall immediately be removed from concrete walls, curbs and streets to prevent staining and runoff into waterways.
4. Fertilizer should be watered in thoroughly after application.
5. Iron will not be acceptable in the fertilizer mixture.
6. Additional fertilization may be required to coincide with events, client expectations, or health of plants. The maintenance contractor shall discuss this with the Owner or Property Manager in advance to receive authorization for additional costs incurred with this application.

C. Insect disease control - turf

Insect and disease treatment shall be by application of necessary insecticides and fungicides as conditions of turf requires. The cost of this will be covered under an extra to the agreement with price agreed upon by Contractor and The Owner prior to initiating the work.

D. Aeration

1. The contractor shall aerate one time per year in September to improve water penetration, before the **second fertilization**. Contractor shall use only a hollow core tine aerator that pulls a 3" plug.
2. Prior to aeration the contractor shall tag all sprinkler heads and valve boxes to prevent damage. Plugs shall be left on the turf to assist in breaking down thatch.
3. Irrigation system (if included) will be checked out for damage by contractor immediately after aeration and any damage due to aeration will be the responsibility of the contractor to repair at his expense.
4. Damage to any other fixture will be repaired at contractor's expense.

E. Weed Control

1. Where specified by the Owner, a complete broadleaf herbicide treatment shall be applied during the second week in May. The Owner shall provide a diagram for areas to be treated.
2. Throughout the growing season weed control of native areas shall be performed using a spot treatment method.
3. Herbicide shall be applied by a licensed applicator or under the direct supervision of a licensed applicator. Any collateral damage as a result of spraying will be the responsibility of the contractor.
4. Do not spray in windy weather. Use extra caution in application of chemicals to prevent overspray onto desired plant material.
5. The contractor shall use Chaparral™ brand herbicide (manufactured by Dow AgroScience, LLC) for treatment in native areas. Apply and mix in accordance with the manufacturer's product specifications.
6. Chemical treatment of weeds within four feet of fence lines, occupied residential lots, or planting beds shall be performed using a hand sprayer or back pack sprayer to minimize the risk of overspray.

F. Overseeding and Re-Seeding

1. When directed by the Owner re-seeding areas shall be accomplished using a broadcast method.
2. The cost of seeding shall be determined using the costs identified in the agreement.
3. Reseeding and overseeding shall occur the third week in June.
4. Refer to construction plans or record drawings for seeding rates and mixtures.

3.04 NATIVE SEED

- A. Herbicide treatment utilizing a glyphosate herbicide to kill all existing herbaceous vegetation as necessary. Two treatments shall be applied within the growing season prior to native seed installation.
- B. Spot management of herbicide treatments to target undesirable perennial weeds at the appropriate time of the year and / or management mowing to limit the establishment and seed production of undesirable annual and biennial weeds.

3.05 NOXIOUS WEED CONTROL

Remove noxious weeds, as defined by the State of Wisconsin from the area within five feet of the perimeters of the landscaped areas by spraying with an approved broadleaf herbicide by May 15th and October 1 with spot application as required. Cost for spot applications, shall be done on a time and material basis per the contract documents. Refer to Woodland Restoration Notes in the plan set for proper weed control in woodland areas.

3.06 REPLACEMENTS

- A. The contractor shall note in maintenance logs all removed plant material. Replacements shall occur as directed by the Owner's Representative.
- B. If replacement becomes necessary, conform with material and installation standards (including a one year warranty) established in the original project specifications.
- C. Replace plant material with size equal to that of the plant material being replaced unless otherwise directed by the Owner's Representative.
- D. All replacements shall be affixed with an inconspicuous tag, to be removed after the warranty has expired. This tag shall indicate the date the plant material was installed.

3.07 DISEASE/INSECT CONTROL

- A. Inspect all landscape areas weekly during growing season for signs of insect or disease infestation.
- B. Apply seasonal applications as necessary to protect plant material.
- C. Spot treat areas as needed to maintain healthy growing plant material. Spot treatment is included in the scope of this contract.
- D. Do not apply airborne insecticides or pesticides when unprotected people or animals may be affected.
- E. Protect all trees, shrubs, and ground covers from over spray that is detrimental to the health of ornamental plant material.
- F. Notify Owner's Representative if extensive spraying is required. Pricing for maintenance work should include the costs of typical pesticide applications.

3.08 TRASH REMOVAL AND CLEAN UP

- A. Clean all areas weekly to provide a neat, well groomed site. Pick up all trash and debris, sweep walks, replace mulch in beds, reinstall weed barrier wherever it has risen above the mulch or pulled loose at the edges. Pinch back dead flower heads.
- B. Adjust cleanup to match seasonal needs.
- C. All landscaped areas will be policed for loose trash and debris on a weekly basis during the entire year, especially before each mowing.
- D. Trash cans shall be emptied weekly
- E. Provide weekly, complete policing and litter pickup to remove paper, glass, trash, undesirable materials, animal and bird droppings, siltation and other accumulated debris within the hard

surfaces and landscape areas to be maintained, including but not limited to: walkways, between and around planted areas, drains, catch basins, and pond edges.

- F. Litter pickup shall be completed as early in the day as possible, but in no case later than 10:00 A.M.
- G. Contractor shall be responsible for off-site removal of all trash, litter and accumulated debris to an approved disposal site weekly.
- H. Fallen leaves will be cleaned up twice per year from all turf and bed areas - once between April 1st and May 1st and the second time between November 15th and December 1st. In turf, the leaves can be mowed and left in place.

3.09 SWEEP/WASHING

- A. Check paved areas bi-weekly for cracks, crevices and deterioration. Report any problems to Owner's Representative immediately. Walkways, trails, hard surface areas, shall be cleaned, including but not limited to: the removal of all foreign objects from surfaces, such as gum, grease, paint, graffiti, broken glass, etc. Methods of sweeping of designed areas can incorporate one or all of the following
 - 1. Power pack blowers
 - 2. Vacuums
 - 3. Brooms
 - 4. Push power blowers
- B. In the event the Contractor elects to use power equipment to complete such operations, Contractor shall be subject to local ordinances regarding noise levels. Further, any schedule of such operations may be modified by the Owner's Representative in order to insure that the public is not unduly impacted by the noise created by such equipment.
- C. Sweep all walkway and hard surface areas once per week following mowing.

3.10 GRAFFITI

- A. Eradication and control shall include all surfaces throughout the site, including
 - 1. Walkways and hard surfaces
 - 2. Site furniture
 - 3. Boulders
 - 4. Retaining walls
 - 5. Monumentation
 - 6. Signage
 - 7. Lighting
- B. All materials and processes used in graffiti eradication shall be non-injurious to surfaces and adjacent property, and approved by Owner's Representative.
- C. Appropriate surface preparation shall be made on painted surfaces. Paint applied shall be the exact shade of color as existing paint, unless otherwise specifically approved by the Owner's Representative.
- D. Contractor shall use special care and attention when removing graffiti from treated or sealed surfaces. Such surfaces shall not be painted. Contractor shall use materials, and methods of application approved by Manufacturer and Owner's Representative.
- E. Visually inspect all areas weekly. Remove graffiti the same day it is visually noted.
- F. Graffiti is not part of the base maintenance contract and will be paid for on an hourly basis as approved by the Owner at the stipulated unit price.

3.11 PEST CONTROL

Contractor shall report to the Owner the existence of any pests damaging, interfering with, or with the potential to damage or interfere with, the landscaping or irrigation system (if included),

including but not limited to, prairie dogs, voles, and porcupines. Contractor shall remove pests as directed by the Owner, using only subcontractors approved by the Owner. This removal cost is "extra" and contractor will be paid using a supplementary pricing for pest removal equipment and labor. Removal may, include relocation of the pest.

3.12 STANDARD WINTER SERVICES

- A. All landscaped areas should be patrolled weekly for loose trash and debris.
- B. Remove leaves resulting from fall leaf drop only in areas having a heavy concentration of leaves that may cause damage to turf or to other landscape materials.
- C. The contractor shall be responsible to monitor all landscape and plants to determine if there is need for winter watering, tree wrapping to prevent sunscald, special pruning due to storm damage, etc. A semi-monthly soil moisture assessment, on the contractor's report, shall be provided to the Owner.
- D. When hand watering, use a water wand to break the water force. All trees and shrubs shall be winter watered using a needle type root feeder as required between irrigation system winterization and spring startup.
- E. The irrigation system (if included) shall not be used for winter watering.

END OF SECTION

SECTION 32 91 10 - SOIL PREPARATION

PART 1 - GENERAL

1.01 SUMMARY

Work in this Section includes, ripping, fertilizing, soil conditioning, and fine grading as shown on plans and details, included on construction drawings, as under this contract.

1.02 SUBMITTALS

Submit product data sheet for compost.

1.03 DELIVERY, STORAGE AND HANDLING

Comply with related sections

1.04 PROJECT/SITE CONDITIONS

- A. Do not perform work when climate and existing site conditions will not provide satisfactory results.
- B. Vehicular accessibility on site shall be as directed by the Owner's Representative. Repair damage to prepared ground and surface caused by vehicular movement during work under this section to original condition at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Compost

- 1. A totally organic product that has been aerobically and naturally processed without the addition of coarse wood chips, in such a manner as to maintain a consistent temperature of 140 degrees Fahrenheit or greater for a period of time sufficient to create the following characteristics, measured by dry weight.
 - (a) Moisture content of 30%-35%
 - (b) Organic matter to nitrogen ratio: 25:1 to 30:1.
 - (c) pH: 6.0 to 8.0 pH.
 - (d) Salts: maximum of 10 mmhos/cm.
 - (e) Less than 1% soil, dirt or sand.
 - (f) Maximum particle size of ½ inch diameter.
 - (g) Eradication of all harmful weed seeds, pathogens and bacteria.
 - (h) A non-offensive, earth smell.
- 2. Acceptable materials are as follows.
 - (a) Classic Compost or Organic Compost
 - (b) Madison Top Soil (www.madison-topsoil.com/) or Blue Ribbon Organics (www.blueribbonorganics.com)
 - (c) Certified OMRI Listed (listed for organic use)

B. Bluegrass sod and irrigated bluegrass seed area amendments

Thoroughly mix the following amendments tilled to a depth of six inches.
Specified Compost 6.0 c.y. per 1,000 s.f.

C. Turf seed areas

- 1. All turf seed areas shall receive "Biosol 6-1-3" organic fertilizer at the time of seeding at a rate of 1,000 pounds per acre. If soils test identify more or less fertilizer required, the contractor will be expected to submit a change order to adjust the contract price for a credit or overage.
- 2. Specified Compost 6.0 c.y. per 1,000 s.f.
- 3. Thoroughly mix till the areas to a depth of six inches.

D. Native Seed Areas

1. Due to potential increase in weed pressure, do not apply fertilizer at time of seeding on native seed areas.

E. Community Garden

1. Use Classic Compost or Organic Compost as indicated in this section.
2. Till 6 c.y compost to a depth of six inches with native soil.
3. No fertilizer shall be applied

F. Planting Bed Amendments

Thoroughly mix the following amendments tilled to a depth of six inches. No additional backfill amendments are required around shrubs if amending the entire bed area.

Specified Compost 6.0 c.y. per 1,000 s.f.

Diammonium Phosphate 5.0 lbs. per 1,000 s.f.

Pre-emergent Weed Controller use manufacturer's specified rate

2.02 SOURCE QUALITY CONTROL

A. Verification of Performance

1. Compost and other soil amendments are typically identified by a rate of cubic yards per 1000 s.f. In order to accurately determine if amendments are applied at the correct rate, the following chart is supplied. This chart is intended to verify the cubic yards by allowing a method for measuring the depth of the material spread uniformly across the surface of the planting area, with no exposed soil, prior to mixing the amendments with the existing soils.
2. This method will be used during inspections to verify that adequate amendments are incorporated into the soil.

c.y./1000 s.f.	Depth (inches)
6 c.y./1000 s.f.	1 inch
5.0 c.y./1000 s.f.	1 ½ inches
3. An inspection of soil preparation will be performed by the Owner's Representative before areas will be released for planting. The inspection shall consist taking a soil sample to determine
 - (a) Proper tilling of the soil. Soil will be judged on how easily a soil probe can be inserted into the ground.
 - (b) Proper depth of tilling, and homogeneity of the soil. The soil sample will be judged on uniformity of the soil profile in the top six to eight inches.
 - (c) A visual inspection for adequate compost will be conducted. An area that has similar soil structures, that has not received compost will be used as the basis of comparison. Should a disagreement exist, multiple soil samples will be sent to an independent testing laboratory to determine the amount of organic matter present. The cost of this testing will be absorbed by the Owner's Representative.

PART 3 - EXECUTION

3.01 EXAMINATION

A. General

1. Verify that existing site conditions are as specified and indicated before beginning work under this Section.
2. Unknown soil conditions may exist on site. This specification is intended to be a standard specification for Soil Preparation for bid purposes only. The contractor shall be responsible for creating a suitable soil medium that ensures healthy plant growth. Immediately following

rough grading operations, the contractor shall take multiple soil samples of the site to identify any chemical, structural, or other soil borne issues that would make the soil counter productive to healthy plant growth. This analysis shall include recommendations for additional organic matter required for the soil. Should amendments or additional work be required to make these soils more conducive to healthy plant growth, the contractors shall submit a change order for the modification 30 days prior to start of landscape installation for Owner's Approval. The change order request shall clearly detail any additional work or amendments necessary for those unacceptable soils.

B. Grades

Inspect to verify rough grading is within +0.1 foot of grades indicated and specified.

C. Damaged Earth

Inspect to verify that earth rendered unfit to receive planting due to concrete, water, mortar, limewater or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the Owner's Representative.

D. Cleanliness

Inspect to verify that site is clean of all trash and debris.

E. Equipment

Inspect to verify other trades have removed all equipment and staging areas from areas of work.

F. Unsatisfactory Conditions

Report in writing to General Contractor with copy to Owner.

G. Acceptance

Beginning of installation means acceptance of existing conditions by installer.

3.02 PREPARATION

A. Protection

1. Locate sewer, water, irrigation, gas, electric, phone and other pipelines or conduits and equipment prior to commencing work.
2. Be responsible for proper repair to landscape, utilities, walls, pavements and other site improvements damaged by operations under this section.

B. Weed Control

1. Remove weeds by applying herbicide 1 week before soil preparation and as needed, but no sooner than 3 months before beginning work.
2. If the area to be developed is infested with noxious or invasive weeds, a chemical application will be required, at a rate recommended on the chemical's product label.
3. The contractor shall remove all weeds prior to tilling or spreading any soil amendments. All dead plant material shall be removed from the site and not tilled into the soil.
4. No herbicide shall be applied to the community garden.
 - (a) Soil tillage shall be used to remove weeds at community garden space as indicated on plans.
 - (b) Use a chisel plow, cultivator, a rototiller or similar implement that reach down at least 6" into the soil.
 - (c) Allow plants to re-grow three to six inches tall after each tillage event and repeat.
 - (d) Till during hot sunny days to destroy new plant growth.
 - (e) Limit any erosion by using erosion control measures stipulated in section 31 25 00

C. Surface Grade

Remove weeds, debris, clods and rocks larger than ½". Dispose of accumulated debris at direction of owner or Owner's Representative.

D. Runoff

Take measures and furnish equipment and labor necessary to control the flow, drainage, and accumulation of water. Insure that all water will run off the grades.

E. Erosion Control

1. Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.
2. No areas of the site may remain unprotected for more than 30 days, or as directed by the storm water management plan and civil engineer's specifications.
3. The contractor shall assume maintenance and management responsibilities for erosion control in an area upon commencement of activities in that area. Erosion control practices must be compliant with the GESC plan, and any Storm Water Management Plans/Programs in place.
4. The contractor will be expected to begin repair to damaged erosion control devices, siltation, wash outs, etc. within twenty four hours of a storm event or upon notification by the Owner's Representative.

3.03 INSTALLATION

A. Soil Amendment

Evenly distribute soil amendments, conditioners, and fertilizer, and first application of fertilizer in landscaped areas at the rates outlined in Part 2.01 of this Section.

B. Mixing

After applying soil conditioner, fertilizers, and compost thoroughly till area to depth of 6" minimum by tilling, plowing, harrowing, or disking until soil is well pulverized and thoroughly mixed.

C. Fine Grading in all Landscape Areas:

1. Do fine grading for areas prior to planting.
2. For ground surface areas surrounding buildings to be landscaped, maintain required positive drainage away from buildings.
3. Establish finish grades to within 0.04 foot of grades indicated.
4. Fine grading must be inspected and approved by Owner's Representative.
5. Any damage caused by inclement weather, to finish grades before inspection, will be repaired by the contractor, prior to acceptance by Owner's Representative.
6. Sodded areas - Allow 1" for sod.

D. Noxious weeds or parts thereof shall not be present in the surface grade prior to landscaping.

E. Prior to acceptance of grades, hand rake to smooth, even surface free of debris, clods, rocks, and vegetable matter greater than ½".

3.04 FIELD QUALITY CONTROL

A. Inspection

1. Provide notice to Owner's Representative requesting inspection at least seven (7) calendar days prior to anticipated date of completion.
2. The following required inspections will be conducted to ensure proper preparation of soil, prior to planting.
 - (a) During, or after, the first cultivation
 - (b) After the application of specified soil amendments.
 - (c) During, or after, the second cultivation

(d) After the final grades have been established

B. Deficiencies

Owner's Representative will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify Owner's Representative for final inspection.

3.05 CLEANING

Remove debris and excess materials from site. Clean out drainage inlet structures. Clean paved and finished surfaces soiled as a result of work under this Section, in accordance with direction given by Owner's Representative.

3.06 PROTECTION

Provide and install barriers as required and as directed by Owner's Representative to protect completed areas against damage from pedestrian and vehicular traffic until acceptance by Owner. Contractor is not responsible for malicious destruction caused by Others.

END OF SECTION

SECTION 32 91 20 - TOPSOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for furnishing, stockpiling, and placing topsoil on a previously prepared subgrade.

1.3 DEFINITIONS

- A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Planting Area: Areas to be planted.
- F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- I. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 SUBMITTALS

- A. See Division 01 Section "Submittals" for submittal requirements.
- B. Soil Analysis Report: As indicated in Article 1.5 "Quality Control", below.

1.5 QUALITY CONTROL

A. Existing On-Site Topsoil:

1. Submit soil analysis report for stockpiled on-site topsoil from the State University Agricultural Extension Service or other approved soil testing laboratory. Report shall cover soil textural classification (percentages of sand, silt, and clay), pH, percentage organic matter, and soluble salts (electric conductivity in millimos/centimeter), and shall include additive recommendations.
2. A minimum of five (5) sample locations per acre are required, with individual tests completed for each sample.
3. A map of the site illustrating the locations of each sample location is to be submitted to Project Manager for approval prior to collecting samples.
4. Follow instructions from soil testing laboratory when collecting samples.
5. Testing will be at the expense of the Contractor.
6. Submit a one (1) quart sample along with analysis results.

B. Imported Topsoil:

1. Submit source location for topsoil to be imported to site for approval by Project Manager.
2. Submit soil analysis report for topsoil imported to site, from the State University Agricultural Extension Service or other approved soil testing laboratory. Report shall cover soil textural classification (percentages of sand, silt, and clay), pH, percentage organic matter, and soluble salts (electric conductivity in millimos/centimeter), and shall include additive recommendations.
 - a. One 1-quart sample per five hundred (500) cubic yards of imported soil is required, with individual tests completed for each sample.
 - b. Follow instructions from soil testing laboratory when collecting samples.
3. Testing will be at the expense of the Contractor.
4. Submit a one (1) quart sample along with analysis results.

C. Manufactured Topsoil:

1. Submit source of manufactured topsoil to be imported to site for approval by Project Manager.
2. Submit soil analysis report for stockpiled on-site topsoil from the State University Agricultural Extension Service or other approved soil testing laboratory. Report shall cover soil textural classification (percentages of sand, silt, and clay), pH, percentage organic matter, and soluble salts (electric conductivity in millimos/centimeter).
 - a. Test is to be completed within sixty (60) days preceding delivery to site. Report shall cover soil textural classification (percentages of sand, silt, and clay), pH, percentage organic matter, and soluble salts (electric conductivity in millimos/centimeter).
 - b. Submit a one (1) quart sample along with analysis results.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver or place topsoil in a frozen, wet, or muddy condition.
- B. Protect stored and placed topsoil from vehicular traffic, equipment storage, material storage, or from contaminants or pollution sources. Topsoil that is compacted or tainted during construction is to be removed from site and disposed of at a licensed landfill at no additional cost to the County.

PART 2 - PRODUCTS

2.1 ON-SITE TOPSOIL

- A. Topsoil previously stripped and stockpiled prior to earthwork operations. See Division 31 Section "Earth Moving".

2.2 IMPORTED TOPSOIL

- A. All topsoil shall be a loam or sandy loam conforming to ASTM D 5268. At least ten (10) days prior to topsoil delivery, notify Project Manager of the source(s) from which topsoil is to be furnished. Topsoil shall be furnished by the Contractor and shall be a natural, friable soil representative of productive soils and shall meet the following conditions.
- B. It shall be obtained from the top six-inches (6") of well drained areas.
- C. Fertile, friable, loamy soil, reasonably free from subsoil, refuse, roots, heavy or stiff clay, stones larger than one-inch (1"), coarse sand, noxious seeds, sticks, brush, litter, and other deleterious substances; suitable for the germination of seeds and the support of vegetative growth. The pH value shall be between 6.5 and 7.5.
- D. Soil Texture:
 - 1. Sand: thirty percent (30%) – fifty percent (50%)
 - 2. Silt: thirty percent (30%) – fifty percent (50%)
 - 3. Clay: five percent (5%) – thirty percent (30%)
- E. Additives: As determined by soil fertility tests.
- F. Percent Organic Content:
 - 1. Turf grass shall be three percent (3%) maximum after amending or conditioning.
 - 2. Native grass shall be one percent (1%) maximum after amending or conditioning.
- G. Soluble Salts: Electric conductivity (EC) shall be less than two (2.0) mmhos/cm for turfgrass areas, dryland areas, and planting beds.

2.3 MANUFACTURED TOPSOIL

- A. "Amended Topsoil" as manufactured by Madison Top Soil, www.madisontopsoil.com, or substitution as approved by Project Manager.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas where the Work of this Section will be performed for compliance with requirements and conditions affecting installation and performance.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within the work area.
 - 2. Verify that final grades are completed in accordance with the Contract Drawings.

- B. Proceed with installation only after unsatisfactory conditions have been corrected and approved by Project Manager.

3.2 PLACING TOPSOIL

- A. Scarify compacted subgrade to a six-inch (6") depth to bond topsoil to subsoil. Place topsoil to a minimum depth of six-inches (6") after settlement. Topsoil shall be free from weeds, sod, and material larger than 1-inch (1"), toxic substances, litter or other deleterious material. Spread evenly and grade to elevations and slopes shown on Contract Drawings. Hand rake areas inaccessible to machine grading.
- B. Utilize salvaged topsoil as the top layer to the extent available. If sufficient on-site material is not available, the Contractor shall furnish and install imported topsoil in the manner described above. Topsoil shall mixed thoroughly with the salvaged topsoil prior to placement.
- C. Utilize manufactured topsoil as the top layer, placing over scarified subgrade to a depth of six-inches (6").

3.3 PROTECTION AND REPAIR

- A. Protect completed areas where topsoil has been spread from traffic which will compact the soil volume. Any areas that, as determined by Project Manager, become compacted due to Contractor's construction traffic shall be reconstructed to specified requirements and approved by Project Manager.

END OF SECTION 32 91 20

SECTION 32 91 13.50 - STORMWATER BIOINFILTRATION

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section shall consist of providing all work, materials, labor, equipment and supervision necessary to construct Stormwater Bioinfiltration Devices. The work under this section does not include providing all work, materials, labor, equipment, and supervision necessary to install plantings for the Stormwater Bioinfiltration Device.

1.2 RELATED WORK

- A. Applicable provisions of Division 1 govern work under this Section.

1.3 REFERENCE STANDARDS

- A. WISDOT PAL Wisconsin Erosion Control Product Acceptability List (PAL)
- B. WISDOT SSHSC Standard Specifications for Highway and Structure Construction
- C. WI DNR Infiltration Standard 1002 – Site Evaluation for Stormwater
- D. WI DNR Standard 1004 – Bioretention for Infiltration
- E. WI DNR S100 – Specification for Compost

1.4 SUBMITTALS

- A. Provide product data for the following materials:
 - 1. Geotextile Fabrics
 - 2. Pipe
 - 3. Aggregates
 - 4. Sand
 - 5. Compost
 - 6. Engineered Soil
 - 7. Erosion Mat
- B. Provide product data for engineered soil blend components: Sand and Compost in compliance with WI DNR Standard 1004 – Bioretention for Infiltration for review and approval by DFD Project Representative.

1.5 QUALITY ASSURANCE

- A. Contractor shall submit, in writing to the Project Representative, a certification from compost supplier that any compost used on the project is in compliance with the requirements outlined in WDNR Specifications S100.
- B. Contractor shall submit, in writing to the Project Representative, a certification from engineered soil supplier that any engineered soil used on the project is in compliance with the requirements outlined in WI DNR Standard 1004 Bioretention for Infiltration.

PART 2 - MATERIALS

2.1 GEOTEXTILE FABRIC

- A. Pipe Sock: The openings of the geotextile fabric shall be small enough to prevent sand particles from entering the underdrain pipe. The fabric shall meet the requirements of the WisDOT SSSHC Section 612.2.8.
- B. Filter Fabric: The fabric shall meet the requirements of the WisDOT SSSHC Section 645.2.4, Geotextile Fabric Type DF, Schedule B.

2.2 PIPE

- A. Underdrain Pipe
 - 1. Pipe shall be corrugated HDPE or PVC, Schedule 40.
 - 2. Pipe shall have a minimum diameter of 6-inches.
 - 3. Pipe shall have perforations.
 - 4. The pipe shall be covered with a filter sock if the storage layer is sand. The filter sock shall conform to the material requirement for Geotextile Fabric.
- B. Cleanout Pipe: The cleanout pipe shall be rigid, non-perforated PVC covered with a watertight cap.

2.3 AGGREGATES

- A. All aggregates used in the construction of Stormwater Bioinfiltration devices shall be double washed and free of organic material and fines.
- B. Storage Layer Aggregate: The aggregate used for the storage layer shall meet the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
2-inch	100
1 ½-inch	90-100
1-inch	20-55
¾ –inch	0-15
3/8 – inch	0-5

- C. Clear Stone Bedding: Washed angular stone or pea gravel shall be used to cover the underdrain pipe. Washed angular stone or pea gravel, graded from 3/8" to 1/4".

2.4 SAND

- A. The preferred sand component consists of mostly SiO₂, but sand consisting of dolomite or calcium may be used.
- B. Manufactured sand or stone dust is not allowed.
- C. The sand shall be washed and drained to remove clay and silt particles prior to mixing.
- D. Sand shall meet one of the following gradation requirements:

1. USDA Coarse Sand (0.02-0.04 inches)
2. ASTM C33 (Fine Aggregate Concrete Sand)
3. WisDOT SSHSC Section 501.2.5.3.4 (Fine Aggregate Sand)

2.5 COMPOST

- A. Compost shall meet the requirements of WI DNR Specification S100 – Compost.

2.6 ENGINEERED SOIL

- A. Engineered Soil shall comply with WI DNR Standard 1004. Engineered Soil shall be a blend of Sand and Compost
- B. Engineered Soil shall consist of a mixture of 70 to 85% Sand and 15 to 30% Compost. The percentages are based on volume.
- C. Engineered soil mix shall be free of rocks, stumps, roots, brush or other material over 1 inch in diameter. No other materials shall be mixed with the planting soil that may be harmful to plant growth or prove a hindrance to planting or maintenance.
- D. Engineered soil mix shall have a pH between 5.5 and 8.0.
- E. Do not fertilize.
- F. Thoroughly blend engineered soil off-site before delivering to site and installing.
- G. Engineered soil shall be delivered to the site and stored on plastic sheeting.
- H. The moisture content shall be low enough to prevent clumping and compaction during placement.

2.7 EROSION MAT

- A. Erosion Mat shall comply with the PAL for Urban, Class 1, Type B as defined by Standard Specifications for Highway and Structure Construction and the PAL. Erosion mat shall be American Excelsior-Curlex Net-Free, Erosion Control Blanket-S32BD, Western Excelsior-Excel SS-2 All Natural, Ero-Guard EG-25 (NN), Erosion Tech ETRS2BN or approved equal.

PART 3 - EXECUTION

3.1 PROTECTION MEASURES

- A. Pre-Installation Meeting: Prior to the installation of the Stormwater Bioinfiltration Device, the A/E, the Project Representative, and the Contractor shall conduct a pre-installation meeting.
- B. Stabilization: Construction of the Stormwater Bioinfiltration Device shall not begin until after the contributing drainage area has been stabilized with vegetation and/or hardscapes. Construction site runoff from disturbed areas shall not be allowed to enter the Stormwater Bioinfiltration Device.
- C. Weather
 1. Construction shall be suspended during periods of rainfall or snowmelt. Construction shall remain suspended if ponded water is present or if residual soil moisture contributes significantly to the potential for soil smearing, clumping, or other forms of compaction.

2. Delays resultant from weather shall not serve as a basis for a Change Order.

D. Compaction Avoidance

1. Compaction and smearing of the soils beneath the floor and side slopes of the Stormwater Bioinfiltration area, and compaction of the soils used for backfill shall be minimized.
2. During construction, the area dedicated to the Stormwater Bioinfiltration Device shall be cordoned off to prevent access by heavy equipment.
3. Acceptable equipment for constructing the Stormwater Bioinfiltration Device includes excavation hoes, light equipment with turf type tires, marsh equipment, or wide-track loaders.

E. Compaction Remediation

1. If compaction occurs at the base of the Stormwater Bioinfiltration Device, the soil shall be refractured to a depth of at least 24-inches.
2. If smearing occurs, the smeared areas shall be corrected by raking or roto-tilling.
3. Compaction and smearing remediation shall be conducted by the Contractor at no additional costs to the Owner.

F. Field Infiltration Testing

1. Immediately after rough grading of Stormwater Bioinfiltration Devices, provide field infiltration testing conducted by a third-party testing agency to verify infiltration rates for all Stormwater Bioinfiltration Devices. Field tests shall be conducted using a Double-Ring Infiltrometer per ASTM D3385. Calculate infiltration rates in accordance with Wisconsin Department of Natural Resources (WDNR) Site Evaluation for Stormwater Infiltration, Standard 1002. Frequency of testing shall be 1 test per 5000 square feet of surface area of the Stormwater Infiltration Device measured at the design high water level and at least one test per device. Furnish a report of the test results to Architect/Engineer.

3.2 TEMPORARY EROSION AND SEDIMENT CONTROLS

- A. The Contractor shall install temporary erosion and sediment controls prior to beginning construction of the Stormwater Bioinfiltration Device. The temporary erosion and sediment controls shall divert stormwater runoff away from the Stormwater Bioinfiltration Device until it is completed.

3.3 Excavation

- A. Excavation equipment shall work from the sides of the Stormwater Bioinfiltration Device to excavate the area to the depths and dimensions as shown on the Drawings. Excavation equipment shall have adequate reach so that they do not need to be located within the footprint of the Stormwater Bioinfiltration Device to excavate it.
- B. Any accidental compaction shall be remediated as prescribed above.

3.4 STORAGE LAYER

- A. Place the Storage Layer Aggregate to the depth as indicated in the Drawings.

3.5 UNDERDRAIN PIPE

- A. Install underdrain pipe at the invert elevations indicated in the Drawings. Pipe shall be installed with a minimum slope of 0.005 ft/ft. Pipe joints shall be made in accordance with the manufacturer's recommendation. Standard pipe fittings shall be used.
 - B. Install cleanouts where shown. Cleanouts shall be installed with a watertight cap located flush with the surface of the Stormwater Bioinfiltration Device.
 - C. Connect pipe to drainage structure as indicated in the Drawings.
- 3.6 CLEAR STONE BEDDING
- A. Clear Stone Bedding above the underdrain pipe to a thickness indicated in the Drawings.
 - B. Clear Stone Bedding layer shall be installed between the Storage Layer Aggregate and the Engineered Soil.
- 3.7 FILTER FABRIC
- A. Install filter fabric around engineered soil extents including sides and bottom to separate from Engineered Soil and Storage Layer as shown in the Construction Drawings, overlapping edges a minimum of 6".
- 3.8 ENGINEERED SOIL
- A. Verify moisture condition of Engineered Soil is low enough to prevent clumping and compaction during placement. Engineered Soil shall not be placed unless it meets these conditions.
 - B. Place Engineered Soil in lifts not to exceed 12 inches in depth until the desired elevation of the Stormwater Bioinfiltration Device is achieved.
 - C. Re-examine the surface within 48 to 72 hours following placement of Engineered Soil. Place additional Engineered Soil until desired elevation of the Stormwater Bioinfiltration Device is achieved at no additional costs to the Owner.
 - D. Steps may be taken to induce mild settling of the Engineered Soil as needed to prepare a stable planting medium and to stabilize the ponding depth.
 - E. Vibrating plate style compactors shall not be used to induce settling.
 - F. No equipment travel on or across placed Engineered Soil is permitted.
 - G. Install silt fence or other means of erosion control around the perimeter of the engineered soil to protect from siltation or contamination from adjacent landscape or paved surfaces and construction activities. Leave erosion control in place until site landscape establishment and construction is complete.
- 3.9 EROSION MAT
- A. Install Erosion Mat on top of surface prior to installation of vegetation.

END OF SECTION

SECTION 32 92 19 - SEEDING

PART 1 - GENERAL

1.01 SUMMARY

- A. The contractor shall supply all material and labor necessary for seeding of grasses, seed mix in areas shown on plans.
- B. The contractor will be expected to produce a lush stand of grasses by the end of the second full growing season.

1.02 REFERENCES

- A. Reference Standards: Comply with U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and be equal in quality to standards for Certified Seed.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements
 - 1. Seeded Areas

This includes all areas within the limits of work that are recently seeded, and do not receive supplemental watering. Contractor should monitor these areas on a regular basis for the presence of weeds. Areas will require individual attention and separate maintenance schedules, thus the contractor is responsible for developing and sustaining a weed-free, lush stand of dryland grasses. Chemical, mechanical, or manual methods should be implemented to prevent the spread of weeds. Contractor will be expected to re-seed or over-seed areas as bare spots develop. Bare spots should not exceed 12 inches square by the end of the first full growing season.
 - 2. Bidders shall assume that all seed areas will require an initial seeding and a second overseeding. The second seeding may be drill seeded or overseeded depending on the amount of coverage achieved in the first attempt at seeding.
 - 3. Seeding shall generally be completed in spring and fall. It may be necessary to alter the production schedule or installation practices to ensure the majority of the seed is installed at the optimal time. For instance it may be necessary to eradicate weeds and seed prior to installing irrigation. Then install irrigation and repair the limited areas where lines were installed.
 - 4. If seeding occurred in the early fall/late summer, it may be required to perform the second seeding during the following landscape season. The second seeding shall not be a condition of initial acceptance, but will be required when reviewing the performance of areas as part of the warranty and final inspections.

1.04 SUBMITTALS

- A. Product data
 - 1. No mow seed mix
 - 2. Turf seed mix
 - 3. Straw mulch – one bale
 - 4. See section 32 92 20 for native seeding

1.05 PROJECT/SITE CONDITIONS

- A. Existing Conditions

Vehicular accessibility on site shall be as directed by Owner's representative. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this section to original condition at no additional cost to Owner.
- B. Environmental Conditions

Do not drill or sow seed during windy weather or when ground is frozen or otherwise untillable.

1.06 WARRANTY

At completion of work, furnish written warranty to Owner based upon requirements as specified.

1.07 MAINTENANCE

- A. The interim maintenance period shall begin immediately after each area is seeded and continue until substantial completion of entire project. Final acceptance of seeded areas will not be given until Owner's representative is satisfied with germination and a full stand of grass is in a vigorous growing condition, with consistency and completion of coverage. During this time, be responsible for watering, mowing, spraying, weeding fertilizing and all related work as necessary to ensure that seeded areas are in a vigorous growing condition. Provide all supervision, labor, material and equipment to maintain seeded areas.
- B. Constant, proactive maintenance of seed areas and regular reviews of the performance are critical to the successful establishment of seeded areas. The contractor is expected to monitor the seeded areas before and after the contract maintenance period and keep these as weed free as reasonably possible. This means throughout the construction period the contractor may need to apply herbicides as frequently as a weekly basis on areas infested with weeds (or undesirable species) or areas where aggressive weeds are observed. Mowing may be a suitable method for weed management as long as it is done so as not to prevent the spread of weed seeds. The contractor will be expected to include a weed management program as part of their bid.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Seed Mix –See Plans
- B. Seeding Rate – See Plans
- C. Fertilizer
Biosol All-Purpose Natural Organic Fertilizer 6-1-3 mixture; www.biosolusa.com
- D. Hydromulch (turf seed only)
Sterilized, wood fiber made from mechanically defibrated whole wood chips, colored green with a non-toxic dye. Cellulose or paper mulches will not be accepted.
- E. Tackifier - Non-toxic, organic, starch based, tackifier agent. Approved manufacturers are as follows
 - 1. Rantec – “Supertac” or “R-Tack” products’ www.ranteccorp.com
 - 2. Chemstar – “Star Tak 600” product; www.chemstar.com
- F. Mulch:
 - 1. Straw:
 - (a) Provide stalks from oats, wheat, rye, barley, or rice that are free of weeds, mold, and other objectionable material.
 - (b) Straw shall be in an air-dry condition and suitable for placing with commercial mulch-blowing equipment.

2.02 SOURCE QUALITY CONTROL

- A. Inspection
 - 1. Primarily for quality; however, other requirements are not waived even though visual inspection results in acceptance.
 - 2. Inspection will be made periodically during seeding, at completion and at end of warranty period by Owner's representative.

3. Seed material is subject to inspection and acceptance. Owner's representative reserves the right to reject at any time or place prior to acceptance, any work and seed which in Owner's representative's opinion fails to meet specification requirements.
 4. Inspections on seeded areas will be for the following items.
 - (a) Proper weed management and control (mechanical, chemical, mowing)
 - (b) Germination and performance of desired grass species
 - (c) Uniform coverage of desired grasses
 - (d) Watering practices (if applicable)
 - (e) Erosion control and management practices
- B. Testing Requirements
1. Seed and seed labels shall conform to current State and Federal regulations and be subject to testing provisions of the Association of Official Seed Analysis.
 2. The Owner's Representative may require tests of seed verification at the Contractor's expense.
 3. All tags from seed bags shall be retained by the contractor and submitted to the Owner's Representative as a means to ensuring the proper seed rate and seed mixtures were applied to areas. If seed tags are not submitted it will be assumed that the area was improperly seeded and the contractor will apply a comprehensive herbicide to the space and reseed areas at their own expense.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions are as specified and indicated before beginning work under this section.
- B. Layout
Verify layout of seeding areas as indicated prior to starting seeding operations.
- C. Grades
Inspect to verify that rough grading is within 0.1 foot of grades specified and indicated.
- D. Unsatisfactory Conditions
Report in writing to General Contractor with a copy to the Owner's representative.
- E. Acceptance
Beginning of installation means acceptance of existing conditions by this Contractor.

3.02 PREPARATION

- A. Protection
 1. Be responsible for proper repair to landscape, utilities, fences, pavements and other site improvements damaged by operations under this Section.
 2. Pay for repairs made by Contractor(s) designated by Owner.
 3. Identify prepared seeding areas requiring protection and erect barriers for proper protection and traffic control.
- B. Erosion Control
Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited materials on the site throughout the duration of work.
- C. Seeding Areas
Remove weeds, debris and rocks larger than ½" which may hinder seeding or subsequent operations. Dispose of accumulated debris at direction of Owner's representative.
- D. Fine Grading
Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc. and as required to provide smooth well-contoured surface prior to proceeding. Tolerance: + 0.04 foot within 50' of walks, roads, and high

visibility areas. In large areas of open space that are intended to be natural in appearance, a "rougher grade" is more desirable as it provides better soil stability and micro-climates for seed growth and diversity.

E. Soil Preparation

1. Soil preparation in all native seed areas is critical to the success and establishment of the plant material. Contractor is to ensure that all areas receive proper and adequate soil preparation according to Section 32 91 10, 32 91 20 32 92 20 .
2. If the area to be developed is infested with noxious or invasive weeds, a chemical application will be required, at a rate recommended on the chemical's product label.
3. Before herbicide is applied, broadleaf weeds shall be clearly identified to determine which herbicide(s) to use that will have the greatest effect at controlling those weeds, and to determine the number of applications that will be necessary to control particular weed species.
4. Timing of post-emergent herbicide applications shall be such that the weeds to be controlled are actively growing so that the most effective control can be achieved. The proper timing recommended on the herbicide manufacturer's label must be strictly followed. However, timing shall also be coordinated with the required mowing. Follow manufacturer's label to determine the recommended wait period (usually a minimum of at least 7 days) before mowing the native seeded areas to which herbicide has been applied
5. Herbicides shall be selected that will have no effect on the native grass species into which the herbicide is being applied.
6. The Contractor must follow the manufacturer's herbicide label precisely. No spraying over open water is permitted on any condition. No mixing or preparation of herbicides and no cleanup of equipment shall occur onsite. Upon completion of herbicide application, remove from the site and legally dispose of any remaining herbicide and related chemicals. The Owner accepts no responsibility for actions by the Contractor resulting from misuse of herbicides or failure to correctly follow the manufacturer's label, and all remediation costs shall be the responsibility of the contractor.

3.03 SEEDING

- A. Drill or plant in manner such that after surface is raked and rolled, seed shall have 1/4" of cover. Accomplish seeding by 'Rangeland' type drills. Any furrows left by drill seeding in areas where fine grading within 0.04 foot is required, shall be rolled to a smooth surface. Smaller areas inaccessible with a seed drill can be hand broadcast and the seed can be raked into the surface.
- B. If broadcast seeding is necessary, the seed rate shall be doubled.
- C. Hydroseeding is not permitted on native seed areas indicated on plans.
- D. On sloped or shaped areas, the first pass of the seeder shall attempt to follow the general contour. If multiple passes are required then the first pass and second passes should be close to perpendicular to each other. Each pass of the seeder should apply approximately ½ of the required seeding rate.
- E. No Mow Seed, as specified on the plan set, shall be seeded between August 20th and October 20th. Fall seeding is recommended when daytime high temperatures drop below 80 degrees. Watering the first two months after seeding shall occur for best germination and growth. If fall seeding is not an option, seeding shall occur between March 15th through May 15th.
- F. If not seeded between August 20th and October 20th, all other seeding types shall occur between May 1st and October 1st, unless otherwise approved by the Owner's Representative or specially stated within the plans.
- G. One seeding shall occur between May 1st and June 1st.
- H. The second seeding shall Occur between August 15th and October 1st.
- I. Seeding may need to occur over consecutive landscape seasons as schedule requires.
- J. The second seeding may be broadcast seeding or drill seeded depending on the amount of

coverage developed from the first seeding.

K. Fertilizer is not permitted for native seeding.

3.04 RESEEDING

Areas shall be reseeded if they exhibit areas greater than the acceptable amounts noted in Part 1 of this Section. Reseeding shall occur continually during the establishment period.

3.05 MULCH

A. Hydromulching is not permitted with native seed.

3.06 EROSION CONTROL

A. Apply erosion control netting to any area which is vulnerable to soil erosion such as swales or steep slopes as indicated on the plans.

B. If Contractor fails to net such areas and soil erosion subsequently occurs, Contractor shall re-establish finish grade, soil preparation, seed bed, and apply jute netting at their own expense.

C. Erosion Control Netting

1. Roll out in direction of flow after seeding and mulching.
2. Apply material loosely and smoothly on soil surface without stretching and without tenting.
3. Avoid walking directly on seed-bed either before or after material is applied.

3.07 NOTIFICATION AND INSPECTION

A. Inspection

1. When seed and mulch are installed notify the Owner's Representative for inspection and to turn over seed tags.
2. When germination is complete, and plants are visible, the Contractor shall notify the Owner's Representative. The inspection will be used to determine if the area is substantially complete and if the warranty period should commence.
3. All washouts, thin, weak, or dead areas shall be repaired prior to the inspection.

B. Deficiencies

1. Owner's representative will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify Owner's representative for final inspection.

3.08 CLEANING

A. Remove debris and excess materials from site. Clean paved and finished areas soiled as a result from work under this section, in accordance with direction given by Owner's representative. Clean out drainage inlet structures.

B. Remove mulch, from seeding operations, immediately from fences, structures, walls, trees, shrubs and sod to prevent damage to same.

3.09 PROTECTION

Provide and install barriers as required and as directed by Owner's representative, or as needed to protect seeded areas from damage from pedestrian and vehicular traffic. Contractor is responsible for malicious destruction of seeding caused by others.

END OF SECTION

SECTION 32 92 20 - NATIVE SEEDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes: Procurement, scheduling, installation, maintenance, and warranty of all seeding of non-wetland areas in accordance with the plans and as specified herein.

1.3 REFERENCES

- A. Association of Official Seed Analysts, as referenced as AOSA.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Within 4 weeks following the issuance of the Notice to Proceed, submit name and location of seed supplier(s) and a complete list of each seed mix by weight and proportion that is being supplied before the seed mix is ordered. Substitutions will not be permitted.
Geographic origins of each seed species.
Method of seeding, including all equipment to be used and manufacturer's specifications for care and handling.
Tackifier: Manufacturer's specifications and recommended rates of application.
Erosion control blankets, including anchor. See section 31 25 00.
Mycorrhizal inoculum: Manufacturer's specifications and recommended rate of application.
- B. Source Quality Control:
 - 1. Samples:
 - a. Straw mulch - one bale.
 - 2. Certifications:
 - a. Test Reports: Prior to delivery of products to the site, submit the following:
 - 1) Seed viability: Pure Live Seed (PLS) test reports for each species; tetrazolium (TZ) testing only conducted by a qualified independent testing laboratory.
Seed purity: Test reports for each species.
 - Topsoil: Two hard copies or digital copy for each certified test report for soil preparation (Section 329100).
- C. Field Quality Control:
 - 1. Maintenance Plan: Prior to the issuance of Substantial Completion, submit detailed methodology and schedules for warranty maintenance of native seeded areas including irrigation, weed control, and invasive species eradication. See Section 32 90 12 "Maintenance". Coordinate native seeding maintenance with other applicable Sections (Planting, Turf Grasses, Irrigation, etc.).
Maintenance Report Forms: Submit Maintenance Report Forms following completion of each maintenance visit. The forms shall cross-reference the Maintenance Plan. Payment for this work will only be made by the Owner when proof of completed work has been provided.
Irrigation Plan: Submit Watering or irrigation plan that outlines methods for maintaining seed bed moisture as described herein. Reliance on natural precipitation will only be allowed with provision of recorded data from a rain gauge located within 1-mile of the project site.
Schedule: Within 4 weeks following the issuance of the Notice to Proceed, submit a project work schedule to the Landscape Architect indicating the dates of each of the following events:

- a. Seed installation - verify compliance with seeding schedules for each mix.
Substantial Completion of work - verify compliance with seeding schedules for each mix.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. The work of this section (installation and maintenance) shall be performed by a Contractor specializing in native seeding.
- B. Regulatory Requirements:
Wisconsin: Chapter 94 of the Wisconsin Statutes
- C. DELIVERY, STORAGE, AND HANDLING
 - 1. All seeds shall be packaged and kept dry to ensure adequate protection against damage and to maintain dormancy while in transit, storage, or during planting operations.
All seed shall be delivered to the site in sealed containers and labeled, in compliance with the Federal Seed Act and applicable State laws.
Seed shall not be delivered and stored longer than 9 months before installation.
Herbicides and other chemicals delivered to site must be in clearly labeled, unopened containers showing weight, analysis, and name of manufacturer.
Straw mulch shall be stored off the ground under a cover that provides protection from moisture and humidity.

1.6 SCHEDULING

- A. Seeding Season
 - 1. Native seed mix shall be installed with a seed drill or broad cast seeded during the spring or fall/ dormant season, and that follow-up weeding, selective herbicide application, and selective mowing be implemented to limit the establishment of weeds.

1.7 WARRANTY

- A. Substantial Completion:
 - 1. Following Native Seed Mix installation, the Landscape Architect and Contractor shall conduct a Substantial Completion Inspection on all seeded areas. Following this inspection, re-topsoil, reseed, mulch, and re-apply erosion control blankets or turf reinforcement matting as directed by the Landscape Architect. Bare spots greater than 5 square feet shall be reseeded in accordance with the original specifications. All repairs shall be completed within one week following the inspection. All reseeding shall occur at no additional cost to the Owner.
- B. Final Acceptance:
 - 1. Final Acceptance will be granted one full year following installation of the Native Seed Mix dependent on achieving specification requirements. Final Acceptance shall be defined as an even distribution and germination of cover crop and an indication of specified native seedlings across the project site. There shall be clear evidence that the specified maintenance mowing has occurred to control weed species. Bare spots greater than 5 square feet shall be reseeded in accordance with the original specifications. All reseeding shall occur at no additional cost to the Owner. Failure to meet the requirement shall result in the Contractor extending the maintenance period until the specified cover is achieved at no additional cost to the Owner.

1.8 MAINTENANCE

- A. Native Seed Mix:
 - 1. Site visits shall occur monthly during the first three growing seasons to assess site conditions and correct issues with erosion and weeds. Reports documenting these visits and any completed maintenance shall be submitted to Owner within two weeks following the visit.
Seeded areas shall be inspected with the Owner twice annually during the three growing

seasons, including a late spring/early summer and an early fall inspection. Notify the Owner of the inspection no less than 2 weeks prior to an inspection. The inspections shall be performed with the Owner in attendance. A report of the findings shall be issued by Contractor including agreed upon maintenance required.

2. First Year Maintenance:

- a. During the first growing season following seeding, mow the native seeded areas each time (up to 4 times) that the plant material (annual and perennial weeds) has reached a height of 12 to 16 inches tall. Mow to a height of 4 to 6 inches. A flail-type mower that will finely shred mowed clippings must be used. Alternatively, a string trimmer may be utilized but all clippings and seed heads must be removed from the site following cutting.

Do not hand-pull any plants the first year following seeding because such action could disrupt small native seedlings.

Spot herbicide application for weed control: Spot treat aggressive weeds with an appropriate herbicide using the wick applicator or soaked-glove method as appropriate for selective treatment of target species. All applications must be made by personnel that are licensed and certified to provide chemical applications. All herbicides shall be applied in accordance with manufacturer label directions, including timing, mixing, application, storage, and clean-up.

3. Second Year Maintenance:

- a. During the second growing season, mow once in early June to a height of 12 inches and every time thereafter when the plants reach 24 inches tall. Do not let any annuals or biennials go to seed. A flail-type mower that will finely shred mowed clippings must be used. Alternatively, a string trimmer may be utilized but all clippings and seed heads must be removed from the site following cutting.

Remove all cut seed heads off-site.

Provide spot herbicide application for weed control as outlined under First Year Maintenance.

4. Third Year Maintenance:

- a. Mow seeded area once in early spring when sugar maples are opening their buds, generally late April to early May. Mow to 2 inches and rake off cut material to expose the soil. Burning is an alternate option but is not covered in this Section.

Do not mow again during the growing season.

Provide spot herbicide application for weed control as outlined under First Year Maintenance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Seed:

1. Origin:

- a. All seed material shall originate from south central sources to the extent possible, specifically from USDA Plant Hardiness Zone 5 or lower.

2. Quality:

- a. Seed shall be fresh, clean, dry, new-crop seed tested for minimum percentages of purity and germination.

3. Testing Requirements:

- a. The seed weights noted under Article 2.1.A.4 of this section indicate weight per acre in Pure Live Seed (PLS) and shall mean the total amount of fresh new crop seed per acre for all species listed. All test results for purity and vitality shall be completed and submitted in advance of seed installation. Based on these results, the Contractor will be required to provide supplemental seeding for each species that does not meet the specified rates of PLS.

4. Seed Mix Composition:

- a. Native Seed Mix: See plans for seed mix.

- B. Topsoil:
 - 1. Topsoil for seeding shall be on-site and/or offsite topsoil.
- C. Mulch:
 - 1. Straw:
 - a. Provide stalks from oats, wheat, rye, barley, or rice that are free of weeds, mold, and other objectionable material.
Straw shall be in an air-dry condition and suitable for placing with commercial mulch-blowing equipment.
- D. Tackifier:
 - 1. Binding agent used to hold straw mulch material in place shall be a clear non-staining latex-based tackifier or a water-soluble polymer.
Asphalt emulsion adhesive is not permitted.
- E. Mycorrhizal Inoculum:
 - 1. The inoculant shall contain highly selected strains of low host specificity endo- and ectomycorrhizal fungi combined with other beneficial fungi (*Trichoderma*), humic acids, biostimulants, beneficial bacteria, soluble sea kelp, and yucca plant extracts.
Endomycorrhizal fungi shall be available as propagules, i.e., spores, root fragments and hyphae.
- F. Fertilizer:
 - 1. Fertilizer is not permitted for native seeding.
- G. Water:
 - 1. Water shall be free of wastewater effluent or other hazardous chemicals. On-site sources of water may be available. Confirm prior to commencing work.

2.2 EQUIPMENT

Drill seeder, such as Truax or Tye drill, or John Deere Rangeland drill. Or a Drop seeder/spreader with cultipacker, such as Brillion or John Deere

Hydroseeding will not be permitted for native seeding.

Crimping Device:

- 1. A mulch disc or other mechanical anchoring/crimping device for use in anchoring straw mulch into place, such as a Reinco Model MD-96 or equivalent, with flat discs with notched edges spaced 8 inches apart to impress mulch 1 to 3 inches down into soil.

Crimping device (serrated disk) is an acceptable alternative to the Tackifier and is the preferred method of anchoring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Upon authorization to proceed with the work, the Contractor shall examine and verify the acceptability of the job site. Notify the Landscape Architect if conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions, or obstructions. Do not proceed with the work until unsatisfactory conditions have been corrected or resolved in writing by the Landscape Architect.

Coordination is required to ensure rainfall/groundwater seepage does not result in soil moisture conditions that will cause excessive rutting during seeding and mulching operations. Failure to meet this requirement will not be an acceptable reason for not installing the seed as specified.

Where seeding occurs in close proximity to other site improvements or areas to remain undisturbed such as existing wetlands and uplands areas, care shall be taken to not disturb the existing conditions. Any areas damaged during planting operations shall be promptly restored to their original condition at no cost to the Owner.

3.2 PREPARATION

- A. Immediately following contract award, the Contractor shall begin seed procurement. During the four week procurement period, the Contractor shall locate all seed suppliers, collectors and producers and set up supply contracts to ensure that the quantity and quality of seed material will be available during the specified planting window.

Any species substitutions MUST be approved by the Landscape Architect prior to seed procurement.

3.3 INSTALLATION

- A. General:
 - 1. Do not sow seed during adverse weather or when wind speeds exceed five miles per hour.
Do not sow seed in areas where standing water is present.
- B. Grade Preparation:
 - 1. Subgrade and finish grade preparation shall be in accordance with site earthwork requirements, and topsoil shall be a minimum 6 inches deep after light compaction to prevent settlement.
Prior to seeding, repair any ruts, rills, or gullies greater than 2 inches in depth to create smooth continuous grades.
If the prepared grade is eroded or compacted by rainfall or other reasons, rework the topsoil to the full 6 inch depth.
Immediately before seeding, scarify, loosen, float and drag topsoil as necessary to bring it to the proper condition. Remove foreign matter larger than 1-inch diameter.
No further grade preparation is required.
- C. Layout:
 - 1. All seeding zone boundaries shall be surveyed and staked on the project site by the Contractor. No seed mix shall be installed until the grade preparation and layout have been approved by the Landscape Architect.
The Landscape Architect reserves the right to adjust seed limits without adjusting total seeded areas, to meet field conditions, at no additional cost to the Owner.
- D. Method:
 - 1. Drill Seeder or Drop Seeder/Spreader:
 - a. For dormant drill seeding, the plant material from the previous growing season should be cut to a maximum 6 inch height and cut material removed. Seed can be sown directly into the cut plant stubble.
For dormant drop seeding, the previous year's plant material should be cut and the ground cultivated before installing seed mix.
For spring drill seeding, sow seed directly onto bare ground or ground where the previous year's plant stubble has been cut to 2 inch height; for spring drop seeding, cultivate the ground before installing seed mix.
If using a drill seeder and there are separate native grass and forb seed mixes, remove delivery tubes when installing the forb mix and allow the seeds to drop directly from the box.
Check the equipment frequently to ensure the seed is dispersing evenly and is not clogging.
If the equipment is not equipped with a roller, pass over the seeded area with a roller to firm the seed into the soil. Rolling is not necessary with dormant seeding.
Do not mix the native seed with any carrier material.
Evenly distribute the seed across the entire site to be seeded.
 - 2. Keep the topsoil moist (to a depth of 3 inches) for 3-6 weeks following seeding; afterward, apply one inch of water during the growing season if rain has not occurred for more than one week. Do not apply water with such a force as to disturb seed, seedlings, and/or topsoil, or that would run off soil surface.

- E. Mulch:
 - 1. Spread straw mulch evenly at the rate of 2 tons per acre over the native seeded areas. Place all mulch on given areas within 48 hours after seeding. A mechanical blower may be used to apply mulch material, provided the machine has been specifically designed and approved for this purpose. Anchor all mulch with crimping (preferred) or tackifier. If a spray tackifier is used, it may be applied either simultaneously with mulch or in a separate application. Apply tackifier over all mulched areas at a rate recommended by manufacturer.
- F. Erosion Control Blanket:
 - 1. See Section 31 25 00.

3.4 REPAIR/RESTORATION

- A. All areas over which hauling operations have been conducted shall be kept clean on a daily basis. Promptly remove all materials spilled on pavement.

Upon completion of seed installation, remove from the site and legally dispose of all trash and debris including any material removed during grade preparation.

Restore any existing areas damaged by operations under the contract. Restoration shall include finish grading and seeding as required to match existing grade and/or wetlands, and maintenance of restored areas.

Any damage by the Contractor to established or newly seeded areas not within the project scope of work shall be repaired and reseeded at no cost to the Owner.

END OF SECTION

SECTION 32 96 43 - TREE TRANSPLANTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for furnishing all labor, equipment, and materials required to transplant trees from the site to new locations on the site, and restore tree excavation area as directed by the Project Manager.

1.3 DEFINITIONS

- A. General: See definitions in ANSI A300 (Part 6) and in ANSI Z60.1 pertaining to field-grown trees, except as otherwise defined in this Section.
- B. Caliper: Diameter of a trunk as measured by a diameter tape at a height six-inches (6") above the root flare for trees up to, and including, four-inch (4") size at this height; and as measured at a height of twelve-inches (12") above the root flare for trees larger than four-inch (4") size.
- C. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape at a height 54-inches (54") above the ground line for trees with caliper of eight-inches (8") or greater as measured at a height of twelve-inches (12") above the root flare.
- D. Root-Ball Depth: Measured from bottom of trunk flare to the bottom of root ball.
- E. Root-Ball Width: Measured horizontally across the root ball with an approximately circular form or the least dimension for non-round root balls, not necessarily centered on the tree trunk, but within tolerance according to ANSI Z60.1.
- F. Root Flare: Also called "trunk flare". The area at the base of the tree's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each of the following:
 - 1. Weed-control barriers.
 - 2. Proprietary Root-Ball-Stabilization Device: One unit.
 - 3. Slow-Release Watering Device: One unit of each size required.
- C. Pruning Schedule: Written schedule prepared by arborist detailing scope and extent of pruning each tree in preparation for and subsequent to transplanting.
 - 1. Species and size of plant.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Seasonal limitations on pruning.

5. Preparatory Pruning: Time schedule and description of preparatory pruning to be performed.
 - a. Indicate time in months preceding the extraction of the tree.
 - b. Indicate diameter of root ball and depth of root pruning for each tree.
 6. Description of root and crown pruning during and subsequent to transplanting.
 7. Description of maintenance following pruning.
- D. Qualification Data: For qualified tree-service firm and arborist.
- E. Certification: From arborist, certifying that transplanted trees have been protected during construction and that trees were promptly and properly treated and repaired when damaged.
- F. Maintenance Recommendations: From arborist, recommended procedures to be established by Owner for care and protection of trees after completing the Work.
 1. Submit before completing the Work.
- G. Existing Conditions: Documentation of existing trees indicated to be transplanted, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 1. Use sufficiently detailed color photographs or video recordings. Color shall accurately depict hue condition of foliage and bark.
 2. Include drawings and notations to indicate specific wounds and damage conditions of each tree designated to be transplanted.
- H. Tree-Transplanting Program: Submit before work begins.
- I. Sample Warranties: For special warranties. See below for requirements.
- J. Tree-maintenance reports. See below for requirements.
- 1.5 QUALITY CONTROL
- A. Preinstallation Conference: Conduct conference at project site.
 1. Review methods and procedures related to transplanting work include, but are not limited to, the following:
 - a. Construction schedule. Verify availability of materials, personnel, equipment, and unimpeded access needed to make progress and avoid delays.
 - b. Tree and plant protection.
 - c. Tree maintenance.
 - d. Arborist's responsibilities.
- B. Tree-Service Firm Qualifications: An experienced landscaping contractor or tree-moving firm that has successfully completed transplanting work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
 1. Arborist Qualifications: Arborist with at least 10 years of experience in Wisconsin and certified by the International Society of Arboriculture (ISA).
- C. Tree-Transplanting Program: Prepare a written plan by arborist for transplanting trees for the whole Project, including each phase or process, tree maintenance, and protection of surrounding materials during operations. Describe in detail the materials, methods, and equipment to be used for each phase of the transplanting work.
 1. Include transplanting times appropriate for each species at the Project location unless otherwise indicated on Contract Drawings or directed by Project Manager.

2. Include a transplanting schedule for each species to be transplanted, coordinated with the Project schedule.
 3. Include site plans clearly marked to show tree-moving routes from extraction to planting locations. Indicate proposed equipment, weight, and turning radii.
 4. Show details of temporary protective barriers where needed.
 5. Include diagrams showing clearances to utility lines and other encumbrances along route.
 6. Include care and maintenance provisions, and eventual removal of tree stabilization.
- D. Pruning work must be determined and completed by a licensed arborist according to standards established by the National Arborists Association: ANSI A300, part 1.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.
- B. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or trees.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each delivery with appropriate certificates.
- C. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees in such a manner as to destroy their natural shape.
- D. Completely cover foliage when transporting trees while they are in foliage.
- E. Handle trees by root ball. Do not drop trees.
- F. Move trees after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after moving, set trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1.7 SITE CONDITIONS

- A. Transplanting operations shall be conducted under favorable weather conditions and during the tree's dormant period (early spring before bud break), unless otherwise approved by County Forestry and the Project Manager.
- B. Weather Limitations: Proceed with transplanting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Do not transplant during excessively wet or frozen conditions, or overly hot, dry and/or windy conditions. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.
- C. At least seventy-two (72) hours prior to beginning transplanting work, the Contractor shall contact Diggers Hotline for location of respective underground utilities. No transplanting shall occur until all utilities have been located.

1.8 DAMAGE TO SITE CONDITIONS

- A. Damage to lawns, natural areas, pavements, irrigation systems, underground utilities and other improvements shall be repaired by the Contractor at no additional cost to the County.
 - 1. Coordination with Turf Areas (Lawns): Perform transplanting before planting turf areas unless otherwise indicated or otherwise approved by Project Manager.
 - 2. Coordination with Planting Beds: Perform transplanting before planting bedded areas unless otherwise indicated.

1.9 WARRANTY

- A. Installer's Special Warranty: Tree-service firm agrees to repair or replace trees and related materials that fail within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth except for defects resulting from abuse, lack of adequate maintenance, or neglect by County, or incidents that are beyond Contractor's control.
 - b. Death and unsatisfactory growth is defined as more than twenty-five percent (25%) dead or in an unhealthy condition or failure to meet general performance requirements at end of warranty period.
 - c. Structural failures including tree(s) falling or blowing over.
 - d. Faulty performance of materials and devices related to tree plantings including tree stabilization and watering equipment.
 - 2. Warranty Periods from Date of Substantial Completion:
 - a. Trees: 24 months.
 - 3. Include the following remedial actions as a minimum
 - a. Remove dead trees and trees with unsatisfactory growth at end of warranty period; replace when directed.
 - b. A limit of one replacement of each tree will be required except for losses or replacements due to failure to comply with requirements.
 - 1) The monetary value of a transplanted tree which needs to be replaced following transplanting, as determined by the Project Manager, due to damage and/or die-back will be determined using Guide for Plant Appraisals, by the Council of Tree and Landscape Appraisers (CLTA), latest edition. Contractor will be responsible for the monetary reimbursement to the County for this amount.
 - c. Replace materials and devices related to tree plantings.
 - d. Provide extended warranty for period equal to original warranty period, for replaced trees.

1.10 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Provide tree maintenance by skilled employees of tree-service firm and as required in Part 3. Begin maintenance immediately after preparatory pruning and continue until plantings are healthy and well established but for not less than maintenance period below.
 - 1. Maintenance Period: twenty-four (24) months from date of Substantial Completion.
- B. Continuing Maintenance Proposal: From tree-service firm to County, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Transplanted trees shall be healthy and resume vigorous growth within two (2) years of transplanting without dieback due to defective extracting, handling, planting, maintenance, or other defects in the Work.

2.2 TREES TO BE TRANSPLANTED

- A. Trees to be transplanted shall be indicated on the Contract Drawings and as directed by the Project Manager.

2.3 WATER

- A. Water shall be supplied by Contractor at planting time and as necessary. Water shall contain no substances harmful to plant life.

2.4 PLANTING MATERIALS

- A. Backfill Soil: Excavated soil mixed with planting soil conditioner of suitable moisture content and granular texture for placing and compacting in planting pit around tree, and free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
 - 1. Mixture: Well-blended mix of two parts excavated soil to one-part soil conditioner.
 - 2. Soil Conditioner: Well-composted material as specified in Section 32 91 10 "Soil Preparation".

2.5 TREE-STABILIZATION MATERIALS

- A. Trunk-Stabilization Materials:
 - 1. Upright and Guy Stakes: Rough-sawn, sound, new softwood with specified wood preservative treatment by pressure process, free of knots, holes, cross grain, and other defects, 2-inch (2") diameter by length indicated, pointed at one end.
 - 2. Wood Deadmen: Timbers measuring eight inches (8") in diameter and forty-eight inches (48") long, treated with specified wood preservative treatment by pressure process.
 - 3. Guys and Tie Wires: ASTM A 641/A 641M, Class 1, #14 galvanized-steel wire, two-strand, twisted.
 - 4. Guy springs: Submit manufacturer's product information for approval.
 - 5. Tree-Tie Webbing: UV-resistant nylon webbing with brass grommets, size as indicated.
 - 6. Flags: One-half-inch (1/2") diameter PVC pipe, length as indicated.

2.6 MISCELLANEOUS PRODUCTS

- A. Organic mulch, free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of chipped bark and/or wood material not larger than four-inches (4") in length. Submit 1.0 cubic foot sample for approval. Mulch is to be weed-free.
- B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
- C. Burlap: Non-synthetic, biodegradable.

PART 3 - EXECUTION

3.1 GENERAL

- A. Proposed locations for trees to be transplanted shall be staked and approved by the Project Manager prior to beginning planting operations. New locations shall be on site as shown on Contract Drawings, or as directed by Project Manager.
- B. Prior to transplanting any trees, the County and Project Manager shall determine if the tree is suitable for transplanting. Unsuitable trees shall be cleared and grubbed in accordance with Division 31 Section "Clearing and Grubbing".

3.2 EXAMINATION

- A. Examine areas where the Work of this Section will be performed for compliance with requirements and conditions affecting installation and performance.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within the work area.
 - 2. Verify that final grades are completed in accordance with the drawings.
- B. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross transplanting areas.
- C. For the record, prepare written report, endorsed by arborist, listing conditions detrimental to transplanting work and tree protection and health.
- D. Proceed with transplanting only after unsatisfactory conditions have been corrected and approval to proceed given by Project Manager.

3.3 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, other facilities, turf areas, and other plants and planting areas from damage caused by transplanting operations. Repair damage to site elements noted above that result from construction activities at no additional cost to the County.
- B. Utility Locator Service: Notify utility locator service before beginning excavation. All utilities are to be marked and a hard-copy diagram of utility locations from the utilities locator service given to Project Manager prior to excavation.
- C. Locate and clearly identify trees for transplanting. Tie a one-inch (1") blue-vinyl tape around each tree at fifty-four (54")-inches above the ground.
- D. Lay out individual transplant locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Project Manager's acceptance of layout before transplanting. Make minor adjustments as required.
- E. Dig pits immediately prior to moving plants to their respective locations for planting to ensure that they will not be unnecessarily exposed to drying elements or to physical damage.

1. Circular pits with vertical sides hard-trimmed shall be excavated with tree spade to a depth such that tree, when planted, will sit two-inches (2") to four-inches (4") above surrounding grade.
 2. Sides of pit shall be scarified to not have a slick surface.
- F. It is not anticipated that planting shall be done where the depth of soil over rock or other underground obstructions is insufficient to accommodate the roots or where pockets in rock or impervious soil will require drainage. If such conditions are encountered in the excavation of planting areas, and if the stone, boulders or other underground obstructions cannot be broken and removed by hand methods in the course of digging plant pits of the usual size, other locations for the planting may be designated by Project Manager. Removal of rock or other underground obstructions and relocation of plant materials shall be done only as directed by the Project Manager. If changes in the location of the work or if the removal of rock or other obstructions, other than existing underground utilities, involves additional work, the Contractor shall notify the County and Project Manager for approval of extra payment.
- G. Seepage: Notify Project Manager if subsoil conditions evidence unexpected water seepage into tree-planting pits.
- H. Drainage: Fill planting pit half full of water and time the infiltration rate of the soil. If the drainage rate is less than 1-inch per hour, notify Project Manager to determine need for subsurface drainage.
- I. The Contractor shall dispose of excess excavated planting pit material by filling and compacting the holes created by moving the trees.

3.4 SIZE OF TREE SPADE

- A. The size of the mechanical tree spade to be used for transplanting shall be 10-inches (10") (minimum) in size for every 1-inch of tree caliper. Minimum size spade shall be 48-inches (48").

3.5 EXTRACTING TREES

- A. General: Extract trees under supervision of the arborist.
- B. Orientation Marking: Mark the north side of each tree with non-permanent paint before extracting.
- C. Root-Ball Width: Minimum ten-inches (10") of root-ball diameter, or least dimension for non-round root balls, for each-inch of tree caliper being transplanted.
1. Out-of-Season Planting: If planting before or after the in-season period for tree, provide a minimum root-ball diameter of twelve-inches (12") for each-inch of tree caliper being transplanted.
- D. Root-Ball Depth: As determined by the arborist for each species and size of tree and for site conditions at original and planting locations.
- E. Extracting with Tree Spade: Obtain Project Manager's approval to use tree spade for tree transplanting.
1. Use the same tree spade to extract the tree as will be used to transport and plant the tree
 2. Do not use tree spade to move trees larger than the manufacturer's maximum size recommendation for the tree spade being used.

3. When extracting the tree, center the trunk within the tree spade and move tree with a solid ball of earth.

3.6 SETTING TREES

- A. Planting Standard: Perform planting according to ANSI A300 (Part 6) unless otherwise indicated.
- B. Relocate trees to be transplanted to locations approved by the County and the Project Manager.
- C. Before planting, verify that root flare is visible at top of root ball. If root flare is not visible, carefully remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- D. Ensure that root flare is visible after planting.
- E. Orientation: Position the tree so that its north side, marked before extracting, is facing north in its new location.
- F. Trees shall be planted in pits to such a depth that the root flare at the plant after settlement will be two-inches (2") above that at which the plant is currently growing. Trees shall be planted upright with trunks plumb and faced areas as described in the "Orientation" article above.
- G. A saucer shall be formed at the perimeter of the pit as indicated.
- H. Slopes: When planting on slopes, set the tree so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.
- I. Trees shall be thoroughly watered immediately after planting.

3.7 TREE STABILIZATION

- A. Trunk Stabilization by Staking and Guying: Install trunk stabilization as follows unless otherwise indicated on Contract Drawings or directed by Project Manager.
 1. Site-Fabricated Staking Method: Stake transplanted trees sized up to four-inch (4") caliper. Install number of stakes as indicated.
 - a. Retain options for compression springs in subparagraphs below to provide more line flexibility than turnbuckles.
 - b. Drive stakes into undisturbed grade outside tree pit as indicated. Avoid penetrating root balls or root masses.
 - c. Securely attach specified wire to stakes.
 - d. Support trees with specified wire and tree tie webbing at contact points with tree trunk, reaching to specified stake. Allow enough slack to avoid rigid restraint of tree.
 - e. Attach thirty-six (36") long x one-half-inch (1/2") diameter PVC pipe flagging to each wire.
 2. Site-Fabricated Guying Method: Buy transplanted trees four-inch (4") caliper and larger. Install no fewer than three (3) guys spaced equally around tree.

- a. For trees four-inches (4") to six-inches (6") caliper, securely attach guys to specified anchor thirty-inches (30") long, driven in to undisturbed soil outside tree pit as indicated. Avoid penetrating root balls or root masses.
- b. Install one (1) compression spring approved by Project Manager in each guy assembly.
- c. For trees larger than six-inches (6") in caliper, anchor guys to wood deadmen buried at least thirty-six (36")-inches below grade.
- d. Support trees with specified wire and tree tie webbing at contact points with tree trunk and reaching to specified anchor. Allow enough slack to avoid rigid restraint of tree.
- e. Attach thirty-six (36") long x one-half-inch (1/2") diameter PVC pipe flagging to each wire.

3.8 CROWN PRUNING

- A. Prune branches only as directed by the County or Project Consulting Arborist.
 - 1. Prune to remove only injured, broken, dying, or dead branches. Do not prune for shape.
 - 2. Do not remove or reduce living branches to compensate for root loss caused by cutting root system or to improve natural tree form
 - 3. Pruning Standards: Perform pruning according to ANSI A300 (Part 1).
- B. Unless otherwise directed by arborist and acceptable to the County, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance during Contract period as recommended by arborist.
- F. Remove pruned material from site and dispose of in legally acceptable manner.

3.9 MULCHING

- A. Organic Mulch: Apply three-inch (3") average thickness of organic mulch extending twelve-inches (12") beyond edge of individual planting pit, and finish level with adjacent finish grades. Do not place mulch within three-inches (3") of trunks or stems.

3.10 MAINTENANCE OF TRANSPLANTED TREES

- A. Tree plantings shall be protected and maintained by the Contractor until Final Acceptance, after which the County will assume responsibility for the maintenance.
- B. Maintenance shall include watering, weeding, cultivating, mulching, removal of dead branches, resetting plants to proper grade or upright position and restoration of tree planting saucers and other necessary operations.
- C. Apply treatments as required to keep tree materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
 - 1. Pesticide Application: Apply pesticides and other chemical products and biological control agents as directed and approved by arborist and Project Manager. Coordinate applications with County's operations and others in proximity to the Work. Notify Project Manager before each application is performed.

- D. Pruning work shall be completed according to standards established by the National Arborist's Association and ANSI A300.
- E. Reports: Have arborist prepare quarterly inspection reports and submit to Project Manager.

3.11 REPAIR AND REPLACEMENT

- A. General: Repair or replace transplanted trees and other plants indicated to remain or be relocated that are damaged by construction operations, in a manner recommended by the arborist and approved by Project Manager, and with 1.10.A.3 of this Section.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Project Manager, and per 1.10.A.3 of this Section

3.12 CLEANUP AND PROTECTION

- A. During transplanting, keep adjacent paving and construction clean and work area in an orderly condition.
- B. Protect trees from damage due to transplanting operations and operations of other contractors and trades. Maintain protection during transplanting and maintenance periods. Treat, repair, or replace damaged plantings.
- C. After planting and before Substantial Completion, remove tags, markings, tie tape, labels, wire, burlap, and other debris from transplanted trees, planting areas, and Project site.

3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Except for materials indicated to be recycled, remove surplus soil, excess excavated material, waste materials, displaced plants, trash, and debris, and legally dispose of them off County property.
- B. Transport surplus satisfactory soil to designated storage areas on County property. Stockpile or spread soil as directed by Project Manager.
 - 1. Except for materials indicated to be retained on County property or recycled, remove excess excavated material, waste materials, displaced plants, trash, and debris, and legally dispose of them off County's property.

END OF SECTION 32 96 43

SECTION 33 4100 – STORM UTILITY DRAINAGE PIPING

Style Definition: SCT

Style Definition: PR2: Indent: Left: 1", No bullets or numbering

PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.
- B. Installation of storm sewer pipe and structures.

1.2 REFERENCES:

- A. 6th Edition of Standard Specifications for Sewer and Water Construction in Wisconsin, Public Works Industry Improvement Program, 2835 North Mayfair Road, Milwaukee, WI 53223.
- B. Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin, Department of Transportation, Division of Highways.
- C. Wisconsin Department of Safety and Professional Services (SPS), Wisconsin Plumbing Products Register, latest edition.

PART 2 - PRODUCTS

2.1 STORM SEWER PIPE AND CULVERT:

- A. Storm sewer pipe shall use the pipe materials below as identified on the plan.

Reinforced Concrete Pipe:

- a. Reinforced Concrete Pipe and fittings shall conform to ASTM C-76 for circular pipe and ASTM C-507 for elliptical pipe. Unless otherwise specified, provide Class III for circular pipe and Class HE-III for elliptical pipe.
- b. Joints for reinforced concrete pipe shall be bell and spigot or tongue and groove. Joints shall be provided with rubber gaskets conforming to ASTM C433. Joints for elliptical pipe shall be provided with trowelable impervious bituminous joint sealer that is manufactured for sealing reinforced concrete storm drainage pipe joints.

PVC Pipe:

- ~~a-c.~~ PVC Pipe shall conform to ASTM D-3034 with solvent weld or elastomeric joints. Pipe shall be SDR-35, unless otherwise noted. Pipe over 15 inches in diameter shall meet the requirements of ASTM F679-03. Do not mix different manufacturer's products, or fittings.

- ~~b-d.~~ PVC fittings shall be same joint type and SDR as connecting PVC storm drainage pipe.

Corrugated HDPE:

a-e. Corrugated Wall High-density Polyethylene (HDPE) shall be ADS N-12 ST IB or equivalent conforming to ASTM F2648, and ASTM D2444. Joints for fittings and pipe shall be soil-tight bell and spigot, provided with rubber gasket. Rubber gasket shall be installed by the pipe manufacturer.

2.2 PIPE BEDDING:

- A. Pipe bedding shall conform to Section 31 20 10

2.3 CONNECTIONS:

- A. Connections between pipes shall be made by using fittings furnished by the manufacturer of the pipe and designed specifically for that purpose.

2.4 PIPE INSULATION:

- A. Rigid closed-cell extruded polystyrene insulation suitable for buried insulation.
- B. Insulation shall have a minimum thickness and width as detailed in construction documents.
- C. Insulation shall be installed as detailed in construction documents and in location shown on construction documents.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Install storm sewer pipe in accordance with the Standard Specifications for Highway and Structure Construction, subsection 607.3 and supplemented as follows:

Trench width shall be in accordance with ASTM Designation D2321 for the standard practice for Underground Installation of Flexible Thermoplastic Sewer Pipe. Minimum width of trench shall be not less than the greater of either the pipe outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches.

3.2 STORM SEWER OUTFALL:

- A. Construct storm sewer outfall in accordance with Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, 2003 Edition.

3.3 CLEANING CULVERTS AND STORM PIPES:

- A. CONTRACTOR shall remove all silt and debris accumulated in the culverts and storm sewer pipe, including pipe, inlets and outlets of the system. This work shall be performed after the completion

of paving and after all turf areas have an established sufficient growth of grass to prevent sediment runoff.

3.4 SEPARATION FROM WATER MAIN:

- A. Storm sewer mains shall be placed at least 8 feet horizontally (center to center) from any existing or proposed water main. If, due to ledge rock conditions or physical barriers, the Project Manager determines that the 8-foot horizontal separation cannot be maintained, the horizontal separation may be reduced to a minimum of 3 feet if the bottom of the water main is at least 18 inches above the top of the sewer.
- B. When storm sewer mains cross under water mains, provide a minimum separation of 12 inches from the bottom of the water main to the top of the sewer. When storm sewer mains cross over water mains, provide a minimum of 18 inches from the bottom of the sewer to the top of the water main.
- C. If an existing water main is encountered while laying the storm sewer and it is impossible to obtain the proper vertical separation, immediately inform the ARCHITECT and reconstruct the water main for a minimum distance of 8 feet on either side of the storm sewer to permit centering one full length of water main over the storm sewer.

3.5 AS-BUILT PLAN:

- A. Contractor shall provide an "As Built" plan with all measurements to the nearest 0.01 foot at no cost to the OWNER or ARCHITECT.

END OF SECTION