

PROJECT MANUAL
FOR
NGFD ENGLISH ROAD STATION - SITEWORK
PROJECT NUMBER: 20233530.0001

PREPARED BY:



PASSERO ASSOCIATES
242 West Main St., Suite 100
Rochester, NY 14614

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END OF SECTION 00 01 15

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SECTION 00 11 13 - ADVERTISEMENT FOR BIDS

The North Greece Fire District will receive sealed Proposals for the NGFD English Road Station - Sitework. The work generally consists of the Sitework for a new Fire Station building at:

1816 English Road
Rochester, New York 14612

Bid Documents may be obtained from Passero Associates at www.passero.com under the 'Bid' tab for a fee of \$25.00 (non-refundable) beginning on November 4, 2024 at 9:00AM.

A non-mandatory Pre-Bid Meeting for this project will be held at the future project site located at 1816 English Road, Rochester, NY 14612 on November 7, 2024 @ 11:30 AM. The meeting will be conducted outside so please plan accordingly.

Bids will be received on a Lump Sum basis for the following Contracts:

Contract A: Sitework

Future contracts will be awarded at a later date.

Bidders will be responsible for paying prevailing wages throughout the course of the project.

The Owner will receive Bids until:

Time: Prior to 2:00pm prevailing local time

Date: November 21, 2024

Place: North Greece Fire District Station #2
1766 Latta Road
Rochester, New York 14612

Bid Opening: Bids will be opened publicly and read aloud immediately after the specified receiving time within the North Greece Fire District's meeting room.

Bid Format: Sealed envelope addressed to North Greece Fire District and be designated as:

"NGFD English Road Station - Contract A - Sitework"

Bid Security in the amount of 5% of the bid must accompany the bid in accordance with the Instruction to Bidding.

The North Greece Fire District is an Equal Opportunity Employer; it does not illegally discriminate on the basis of race, religion, gender, age, color, disability, national origin, or ethnic heritage, and encourages participation by minority and women-owned businesses.

The Owner reserves the right to accept or reject any or all offers.

END OF SECTION

DRAFT AIA® Document A701™ – 2018

Instructions to Bidders

for the following Project:

(Name, location, and detailed description)

<>
< >

THE OWNER:

(Name, legal status, address, and other information)

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THE ARCHITECT:

(Name, legal status, address, and other information)

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

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§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper

documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

« »

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

« »

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Insert the form and amount of bid security.)

« »

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning « » days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

« »

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

« »

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

« »

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

(Insert the complete AIA Document number, including year, and Document title.)

« »

- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.

(Insert the complete AIA Document number, including year, and Document title.)

« »

- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

(Insert the complete AIA Document number, including year, and Document title.)

« »

- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013.)

« »

- .5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda:

Number	Date	Pages

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[☐] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

☐ ☐

[☐] The Sustainability Plan:

Title	Date	Pages

[☐] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents listed below:

(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

☐ ☐

SECTION 00 21 14 - SUPPLEMENTARY INSTRUCTION TO BIDDERS

INSTRUCTIONS TO BIDDERS

1.01 INSTRUCTIONS TO BIDDERS FOR PROJECT CONSIST OF THE FOLLOWING:

- A. AIA Document A701, "Instructions to Bidders."
 - 1. The following Supplementary Instructions to Bidders modify and add to the requirements of the Instructions to Bidders.

1.02 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS, GENERAL

- A. The following supplements modify AIA Document A701, "Instructions to Bidders." Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, unaltered portions of the Instructions to Bidders shall remain in effect.

1.03 ARTICLE 2 - BIDDER'S REPRESENTATIONS

- A. Add Section 2.1.3.1:
 - 1. 2.1.3.1 - The Bidder has investigated all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner.
- B. Add Section 2.1.5:
 - 1. 2.1.5 - The Bidder is a properly licensed Contractor according to the laws and regulations of Greece, NY and meets qualifications indicated in the Procurement and Contracting Documents.
- C. Add Section 2.1.6:
 - 1. 2.1.6 - The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

1.04 ARTICLE 3 - BIDDING DOCUMENTS

- A. 3.2 - Modification or Interpretation of Bidding Documents:
 - 1. Add Section 3.2.2.1:
 - a. 3.2.2.1 - Submit Bidder's Requests for Interpretation using form furnished with electronic bid forms and submitted via email.
- B. 3.4 - Addenda:
 - 1. Delete Section 3.4.3 and replace with the following:
 - a. 3.4.3 - Addenda may be issued at any time prior to the receipt of bids.
 - 2. Add Section 3.4.4.1:
 - a. 3.4.4.1 - Owner may elect to waive the requirement for acknowledging receipt of 3.4.4 Addenda as follows:
 - 1) 3.4.4.1.1 - Information received as part of the Bid indicates that the Bid, as submitted, reflects modifications to the Procurement and Contracting Documents included in an unacknowledged Addendum.
 - 2) 3.4.4.1.2 - Modifications to the Procurement and Contracting Documents in an unacknowledged Addendum do not, in the opinion of Owner, affect the Contract Sum or Contract Time.

1.05 ARTICLE 4 - BIDDING PROCEDURES

- A. 4.1 - Preparation of Bids:
 - 1. Add Section 4.1.1.1:

- a. 4.1.1.1 - Printable electronic Bid Forms and related documents are available from Architect.
- 2. Add Section 4.1.8:
 - a. 4.1.8 - The Bid shall include unit prices when called for by the Procurement and Contracting Documents. Owner may elect to consider unit prices in the determination of award. Unit prices will be incorporated into the Contract.
- 3. Add Section 4.1.9:
 - a. 4.1.9 - Owner may elect to disqualify a bid due to failure to submit a bid in the form requested, failure to bid requested alternates or unit prices, failure to complete entries in all blanks in the Bid Form, or inclusion by the Bidder of any alternates, conditions, limitations or provisions not called for.
- B. 4.3 - Submission of Bids:
 - 1. Add Section 4.3.1.2:
 - a. 4.3.1.2 - Include Bidder's Contractor License Number applicable in Project jurisdiction on the face of the sealed bid envelope.
- C. 4.4 - Modification or Withdrawal of Bids:
 - 1. Add the following sections to 4.4.2:
 - a. 4.4.2.1 - Such modifications to or withdrawal of a bid may only be made by persons authorized to act on behalf of the Bidder. Authorized persons are those so identified in the Bidder's corporate bylaws, specifically empowered by the Bidder's charter or similar legally binding document acceptable to Owner, or by a power of attorney, signed and dated, describing the scope and limitations of the power of attorney. Make such documentation available to Owner at the time of seeking modifications or withdrawal of the Bid.
 - b. 4.4.2.2 - Owner will consider modifications to a bid written on the sealed bid envelope by authorized persons when such modifications comply with the following: the modification is indicated by a percent or stated amount to be added to or deducted from the Bid; the amount of the Bid itself is not made known by the modification; a signature of the authorized person, along with the time and date of the modification, accompanies the modification. Completion of an unsealed bid form, awaiting final figures from the Bidder, does not require power of attorney due to the evidenced authorization of the Bidder implied by the circumstance of the completion and delivery of the Bid.
- D. 4.5 - Break-Out Pricing Bid Supplement:
 - 1. Add Section 4.5:
 - a. 4.5 - Provide detailed cost breakdowns on forms provided no later than two business days following Construction Manager's request.
- E. 4.6 - Subcontractors, Suppliers, and Manufacturers List Bid Supplement:
 - 1. Add Section 4.6:
 - a. 4.6 - Provide list of major subcontractors, suppliers, and manufacturers furnishing or installing products no later than two business days following Construction Manager's request. Include those subcontractors, suppliers, and manufacturers providing work totaling three percent or more of the Bid amount. Do not change subcontractors, suppliers, and manufacturers from those submitted without approval of Construction Manager.

1.06 ARTICLE 5 - CONSIDERATION OF BIDS

- A. 5.2 - Rejection of Bids:

1. Add Section 5.2.1:
 - a. 5.2.1 - Owner reserves the right to reject a bid based on Owner's and Construction Manager's evaluation of qualification information submitted following opening of bids. Owner's evaluation of the Bidder's qualifications will include: status of licensure and record of compliance with licensing requirements, record of quality of completed work, record of Project completion and ability to complete, record of financial management including financial resources available to complete Project and record of timely payment of obligations, record of Project site management including compliance with requirements of authorities having jurisdiction, record of and number of current claims and disputes and the status of their resolution, and qualifications of the Bidder's proposed Project staff and proposed subcontractors.

1.07 ARTICLE 6 - POSTBID INFORMATION

- A. 6.1 - Contractor's Qualification Statement:
 1. Add Section 6.1.1:
 - a. 6.1.1 - Submit Contractor's Qualification Statement no later than two business days following Construction Manager's request.
- B. 6.3 - Submittals:
 1. Add Section 6.3.1.4:
 - a. 6.3.1.4 - Submit information requested in Sections 6.3.1.1, 6.3.1.2, and 6.3.1.3 no later than two business days following Construction Manager's request.

1.08 ARTICLE 7 - PERFORMANCE BOND AND PAYMENT BOND

- A. 7.1 - Bond Requirements:
 1. Add Section 7.1.1.1:
 - a. 7.1.1.1 - Both a Performance Bond and a Payment Bond will be required, each in an amount equal to 100 percent of the Contract Sum.
- B. 7.2 - Time of Delivery and Form of Bonds:
 1. Delete the first sentence of Section 7.2.1 and insert the following:
 - a. The Bidder shall deliver the required bonds to Owner no later than 10 days after the date of Notice of Intent to Award and no later than the date of execution of the Contract, whichever occurs first. Owner may deem the failure of the Bidder to deliver required bonds within the period of time allowed a default.
 2. Delete Section 7.2.3 and insert the following:
 - a. 7.2.3 - Bonds shall be executed and be in force on the date of the execution of the Contract.

1.09 ARTICLE 9 - EXECUTION OF THE CONTRACT

- A. Add Article 9:
 1. 9.1.1 - Subsequent to the Notice of Intent to Award, and within 10 days after the prescribed Form of Agreement is presented to the Awardee for signature, the Awardee shall execute and deliver the Agreement to Owner through Construction Manager, in such number of counterparts as Owner may require.
 2. 9.1.2 - Owner may deem as a default the failure of the Awardee to execute the Contract and to supply the required bonds when the Agreement is presented for signature within the period of time allowed.

3. 9.1.3 - Unless otherwise indicated in the Procurement and Contracting Documents or the executed Agreement, the date of commencement of the Work shall be the date of the executed Agreement.
4. 9.1.4 - In the event of a default, Owner may declare the amount of the Bid security forfeited and elect to either award the Contract to the next responsible bidder or re-advertise for bids.

END OF DOCUMENT 00 22 14

SECTION 00 21 14 - SUPPLEMENTARY INSTRUCTION TO BIDDERS

INSTRUCTIONS TO BIDDERS

1.01 INSTRUCTIONS TO BIDDERS FOR PROJECT CONSIST OF THE FOLLOWING:

- A. AIA Document A701, "Instructions to Bidders."
 - 1. The following Supplementary Instructions to Bidders modify and add to the requirements of the Instructions to Bidders.

1.02 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS, GENERAL

- A. The following supplements modify AIA Document A701, "Instructions to Bidders." Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, unaltered portions of the Instructions to Bidders shall remain in effect.

1.03 ARTICLE 2 - BIDDER'S REPRESENTATIONS

- A. Add Section 2.1.3.1:
 - 1. 2.1.3.1 - The Bidder has investigated all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner.
- B. Add Section 2.1.5:
 - 1. 2.1.5 - The Bidder is a properly licensed Contractor according to the laws and regulations of Greece, NY and meets qualifications indicated in the Procurement and Contracting Documents.
- C. Add Section 2.1.6:
 - 1. 2.1.6 - The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

1.04 ARTICLE 3 - BIDDING DOCUMENTS

- A. 3.2 - Modification or Interpretation of Bidding Documents:
 - 1. Add Section 3.2.2.1:
 - a. 3.2.2.1 - Submit Bidder's Requests for Interpretation using form furnished with electronic bid forms and submitted via email.
- B. 3.4 - Addenda:
 - 1. Delete Section 3.4.3 and replace with the following:
 - a. 3.4.3 - Addenda may be issued at any time prior to the receipt of bids.
 - 2. Add Section 3.4.4.1:
 - a. 3.4.4.1 - Owner may elect to waive the requirement for acknowledging receipt of 3.4.4 Addenda as follows:
 - 1) 3.4.4.1.1 - Information received as part of the Bid indicates that the Bid, as submitted, reflects modifications to the Procurement and Contracting Documents included in an unacknowledged Addendum.
 - 2) 3.4.4.1.2 - Modifications to the Procurement and Contracting Documents in an unacknowledged Addendum do not, in the opinion of Owner, affect the Contract Sum or Contract Time.

1.05 ARTICLE 4 - BIDDING PROCEDURES

- A. 4.1 - Preparation of Bids:
 - 1. Add Section 4.1.1.1:

- a. 4.1.1.1 - Printable electronic Bid Forms and related documents are available from Architect.
 - 2. Add Section 4.1.8:
 - a. 4.1.8 - The Bid shall include unit prices when called for by the Procurement and Contracting Documents. Owner may elect to consider unit prices in the determination of award. Unit prices will be incorporated into the Contract.
 - 3. Add Section 4.1.9:
 - a. 4.1.9 - Owner may elect to disqualify a bid due to failure to submit a bid in the form requested, failure to bid requested alternates or unit prices, failure to complete entries in all blanks in the Bid Form, or inclusion by the Bidder of any alternates, conditions, limitations or provisions not called for.
- B. 4.3 - Submission of Bids:
 - 1. Add Section 4.3.1.2:
 - a. 4.3.1.2 - Include Bidder's Contractor License Number applicable in Project jurisdiction on the face of the sealed bid envelope.
- C. 4.4 - Modification or Withdrawal of Bids:
 - 1. Add the following sections to 4.4.2:
 - a. 4.4.2.1 - Such modifications to or withdrawal of a bid may only be made by persons authorized to act on behalf of the Bidder. Authorized persons are those so identified in the Bidder's corporate bylaws, specifically empowered by the Bidder's charter or similar legally binding document acceptable to Owner, or by a power of attorney, signed and dated, describing the scope and limitations of the power of attorney. Make such documentation available to Owner at the time of seeking modifications or withdrawal of the Bid.
 - b. 4.4.2.2 - Owner will consider modifications to a bid written on the sealed bid envelope by authorized persons when such modifications comply with the following: the modification is indicated by a percent or stated amount to be added to or deducted from the Bid; the amount of the Bid itself is not made known by the modification; a signature of the authorized person, along with the time and date of the modification, accompanies the modification.
Completion of an unsealed bid form, awaiting final figures from the Bidder, does not require power of attorney due to the evidenced authorization of the Bidder implied by the circumstance of the completion and delivery of the Bid.
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- A. 6.1 - Contractor's Qualification Statement:
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- A. Add Article 9:
 - 1. 9.1.1 - Subsequent to the Notice of Intent to Award, and within 10 days after the prescribed Form of Agreement is presented to the Awardee for signature, the Awardee shall execute and deliver the Agreement to Owner through Construction Manager, in such number of counterparts as Owner may require.
 - 2. 9.1.2 - Owner may deem as a default the failure of the Awardee to execute the Contract and to supply the required bonds when the Agreement is presented for signature within the period of time allowed.
 - 3. 9.1.3 - Unless otherwise indicated in the Procurement and Contracting Documents or the executed Agreement, the date of commencement of the Work shall be the date of the executed Agreement.

4. 9.1.4 - In the event of a default, Owner may declare the amount of the Bid security forfeited and elect to either award the Contract to the next responsible bidder or re-advertise for bids.

END OF DOCUMENT 00 22 14

SECTION 00 25 13 - PREBID MEETINGS

PREBID MEETING

1.01 CONSTRUCTION MANAGER WILL CONDUCT A PREBID MEETING AS INDICATED BELOW:

- A. Meeting Date: Thursday, November 7th, 2024.
 - 1. Meeting Time: 11:30 a.m., local time.
 - 2. Location: Future project location, 1816 English Road, Rochester, NY 14612.
- B. Attendance:
 - 1. Prime Bidders: Attendance at Prebid meeting is recommended.
 - 2. Subcontractors: Attendance at Prebid meeting is recommended.
- C. Bidder Questions: Submit written questions to be addressed at Prebid meeting minimum of two business days prior to meeting.
- D. Agenda: Prebid meeting agenda will include review of topics that may affect proper preparation and submittal of bids, including the following:
 - 1. Procurement and Contracting Requirements:
 - a. Advertisement for Bids.
 - b. Instructions to Bidders.
 - c. Bidder Qualifications.
 - d. Bonding.
 - e. Insurance.
 - f. Bid Security.
 - g. Bid Form and Attachments.
 - h. Bid Submittal Requirements.
 - i. Bid Submittal Checklist.
 - j. Notice of Award.
 - 2. Communication during Bidding Period:
 - a. Obtaining documents.
 - b. Access to Project Web site.
 - c. Bidder's Requests for Information.
 - d. Bidder's Substitution Request/Prior Approval Request.
 - e. Addenda.
 - 3. Contracting Requirements:
 - a. Agreement.
 - b. The General Conditions.
 - c. The Supplementary Conditions.
 - d. Other Owner requirements.
 - 4. Construction Documents:
 - a. Scopes of Work.
 - b. Temporary Facilities.
 - c. Use of Site.
 - d. Work Restrictions.
 - e. Alternates, Allowances, and Unit Prices.
 - f. Substitutions following award.
 - 5. Separate Contracts:

- a. Work by Owner.
- b. Work of Other Contracts.
- 6. Schedule:
 - a. Project Schedule.
 - b. Contract Time.
 - c. Liquidated Damages.
 - d. Other Bidder Questions.
- 7. Site/facility visit or walkthrough.
- 8. Post-Meeting Addendum.
- E. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes to attendees. Minutes of meeting are issued as Available Information and do not constitute a modification to the Procurement and Contracting Documents. Modifications to the Procurement and Contracting Documents are issued by written Addendum only.
 - 1. Sign-in Sheet: Minutes will include list of meeting attendees.
 - 2. List of Planholders: Minutes will include list of planholders.

END OF DOCUMENT 00 25 13

SECTION 00 31 00 - AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

- A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of the Contract Documents, as follows:
- B. Geotechnical Report: Entitled Geotechnical Evaluation, 24.05696.0, dated July 26, 2024.
 - 1. Supplemental shear wave recommendation letter: Entitled Geophysical Investigation Summary Letter, dated August 16, 2024.
 - 2. This report identifies properties of below grade conditions and offers recommendations for the design of foundations.
 - 3. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in the Contract Documents.
 - 4. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Price accruing to Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 31 00

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Foundation Design, P.C.

SOIL • BEDROCK • GROUNDWATER

July 26, 2024

North Greece Fire District
1766 Latta Road
Rochester, New York 14612

Attention: Mr. Jeffery Gates

Reference: New Fire Station, English Road Fire House
English Road, Greece, New York
Geotechnical Evaluation, 24.05696.0

Dear Mr. Gates:

This report summarizes our Geotechnical Evaluation for the referenced project. We understand that you plan to construct a new fire station (finished floor 342.5) north of English Road where single family residences were located. We intend for this report to be used exclusively for this project. We base this evaluation on our review of U.S.G.S. topographic and geologic mapping; test pit exploration; laboratory testing; and consultation with the design team. Foundation Design, P.C. was retained to provide the services outlined in our July 12, 2024 *Geotechnical Engineering Proposal, P5747.0*.

The parcel is located west of Long Pond Road and north of English Road in Greece, New York. Bordering the parcel to the northwest is a large grass field and wooded area, with residential and commercial properties to the west, east and south. The parcel is currently a mix of lawn areas, pavement areas, and residential properties. Residential homes used to lie along English Road, they were demolished sometime around 2010. Attached is a *General Location Plan* on 2023 U.S.G.S. topographic mapping.

Bayside Paving Contractors provided a CAT 308E2 excavator on July 19, 2024 to excavate test pits, TP-1 through TP-18. Test pits were excavated to depths of 3.8 and 8.0 feet below grade. Our staff logged the soil profiles and collected representative soil samples obtained from the excavation spoils. Upon completion, the test pits were backfilled with spoils and re-leveled. We located the test pits using site features and google earth coordinates. Surface elevations were estimated using available site topographic mapping. A *Test Pit Location Plan* and the test pit logs are attached.

North Greece Fire District
July 26, 2024
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We selected representative soil samples for laboratory analysis. The testing program consisted of three moisture content tests and three sieve analyses. All laboratory testing was completed by our staff, we discuss the test results below. Our laboratory report is enclosed.

The following interpretations of the soil, bedrock, and groundwater conditions are based on our test pits and our site observations. Variations from the inferred subsurface profile are possible. See the attached logs for soil descriptions at the test locations. Call us to the site if variations are encountered during construction so we can assess the impacts on these recommendations.

A typical soil profile consists of topsoil over a native glacial lake deposit. The topsoil was measured to be 8 inches to 22 inches thick at the test locations, averaging 16 inches thick. Fill soils were noted beneath the topsoil at six of the test locations (TP-9, TP-11 through TP-15). The fill soils generally consisted of a reworked earth fill, likely placed during the installation of the drainage lines/leach fields. We encountered a leach field at TP-14. The earth fill included slag at TP-11. Fill at TP-12 consisted of ash and cinders. Fill depths are tabulated below. The native soils consist of silty sand and sandy silt, which classifies as SM and ML, respectively, in the Unified Soil Classification System. Moisture content tests on the native soil showed 24.0, 14.2, and 10.6 percent by weight.

Table No. 1 – Fill Depths			
Test Pit Location	Surface Elevation	Fill Depth (ft)	Native Soil Elevation
TP-9	±341.0	3.0	338.0
TP-11	±345.0	3.0	342.0
TP-12	±342.5	1.3	341.2
TP-13	±339.0	1.5	337.5
TP-14	±340.5	3.5	337.0
TP-15	±341.0	3.0	338.0

We observed slight water seepage at locations TP-2, TP-3, TP-7, TP-8, TP-11, TP-12, and TP-14 through TP-18 at depths of 3 to 6 feet below existing grade. Drainage pipes were encountered at TP-9 and TP-13 which left standing water in the bottom of the test pits; the line at TP-15 was dry. A leach field was encountered at TP-14. Past wells installed in the area showed water levels of 4 to 6 feet below grade. We expect this water tends to 'perch' above the impermeable silty soils. Expect water levels to fluctuate with seasonal changes.

Bedrock was not encountered during exploration. Past work in the area shows bedrock likely lies within 30 feet of the surface. Geologic mapping shows the bedrock as the Queenston Formation of the Medina Group. This formation consists of shale. Bedrock should not affect the project.

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Based on the above data and judgments we conclude that the new building can be supported on spread footing foundations bearing on the native soils. There are some near surface fills/utilities that will require removal from within the building footprint.

We make the following specific recommendations:

1. Clear and remove the topsoil from the proposed building footprint and pavement areas, removing the underlying fill material (1.3 feet to 3.5 feet deep) from the building footprint. Extend the undercuts five feet outside the structure footprint. Demolish the existing structure, removing the slab and foundations. Reroute/remove any utilities that lie within the addition footprint. We recommend that the Geotechnical Engineer observe the removal excavations and verify the unsuitable fill has been removed. The contractor should provide a loaded ten-wheel truck or similar heavy construction equipment for the proof-rolling. Rework as directed areas that rut, weave, quake, or roll under proof-rolling.
2. 'Clean' on-site soils, free of organic and debris, may be used for structural fill, but are likely to be available in limited quantity. These soils are silty and will tend to be moisture sensitive and frost susceptible. They are also currently wet of optimum. Budget for an imported granular fill, similar in gradation to N.Y.S.D.O.T. Item 203.07 or NYSDOT Item 304.12 (No. 2 crusher-run stone); use the on-site soils as weather conditions allow. Submit proposed imported material samples and sources to the Geotechnical Engineer for approval on a case-by-case basis.

We define structural fill as fill and backfill placed under or around foundations, floor slabs, sidewalks, and pavements. Place then moisture condition structural fill to within two percent of optimum moisture. Compact structural fill to at least 95 percent of maximum dry density as determined by the Modified Proctor method, ASTM D-1557. Place all fill material in loose lifts not exceeding 12-inches thick.

3. Support the new structure on spread footing foundations bearing on the native soils or the new structural fill. Design the foundations using an allowable bearing pressure of 3,000 psf. Footings should be at least two feet wide or square. Design footings to bear at least four feet below exterior grade where frost protection is required. We estimate settlement based on these sizes and depths at less than 1-inch. We recommend your structural engineer confirm that these magnitudes of settlement are within the 'normal' tolerances for the new structures.
4. Place twelve inches of granular material (N.Y.S.D.O.T. Item 304.12) below slabs-on-grade in equipment bays/storage areas. Thin the subbase to eight inches beneath office space. Confirm the acceptability of the floor subgrade prior to placing the granular base course. Rework or replace areas that rut, weave, quake, or are otherwise deemed unsatisfactory. Call us to the site if the subgrade cannot be stabilized prior to placing the base. Based on this preparation method, design the floors using a Modulus of Subgrade Reaction (K_{vi}) of 125 psi/in. This value should be used at the bottom of the slab/top of the granular base. The architect and/or structural engineer should review the proposed interior finishes and humidity control requirements to determine whether a vapor barrier is appropriate under the slab and if so, where it should be installed. See the American Concrete Institute Document 302.1R, *Concrete Floor and Slab Construction*, for more information.

North Greece Fire District
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5. NYS Building Code identifies various seismic design criteria for this project. We identify the site as having a Site Classification of D (Stiff Soil). We recommend using the following seismic design parameters:

Table No. 2 – Seismic Design Parameters ASCE 7-16					
Spectral Response Acceleration		Soil Factors		Design Spectral Response Acceleration	
S_s	S₁	S_{MS}	S_{M1}	S_{Ds}	S_{D1}
0.160g	0.048g	0.256g	0.115g	0.171g	0.077g

6. Perform trenching and excavating in accordance with the Occupational Safety and Health Administration (OSHA) requirements and New York State Building Code Standards. The contractor is responsible for determining the measures required in meeting these standards. Cut unsupported temporary excavations to a stable slope, but in no case steeper than 1 horizontal on 1 vertical.

We believe that the earthwork and the foundation/utility trench excavations can be performed using 'normal' earth moving equipment. Again, surface water will perch above the dense native soil. Expect to have to actively manage this during construction. Remove stormwater that accumulates in open excavations using sumps and pumps.

7. The pavement/gravel drive subgrade will consist of either native soil or reworked on-site soil/fill. Drainage will be critical to the long term performance. Pitch the subgrade to match the surface grades and provide drainage out of the subbase. The Geotechnical Engineer should observe a proof roll of the subsequent subgrade prior to placing the final subbase material. The contractor should provide a loaded ten-wheel truck or similar heavy construction equipment for the proof-rolling. If the subgrade ruts, weaves, or quakes during proof-rolling, re-compact or replace the unstable areas as recommended by the Geotechnical Engineer's representative.

For the entrance to the garage and other outdoor "truck staging areas", use a concrete apron to avoid rutting of the asphalt. Where the fire trucks are regularly driven, install the Heavy-Duty Pavement Section outlined in Table No. 3 below. For all other pavement, use the Standard Duty Pavement Section outlined in Table No. 4 below.

Table No. 3 – Heavy Duty Pavement Section		
1.0"	Asphalt Topcoat	NYSDOT Item 403.178902
3.0"	Asphalt Binder	NYSDOT Item 403.138902
15.0"	Crusher-run Subbase	NYSDOT Item 304.12
	Geotextile Stabilization Fabric	Tensar T-130 or equivalent
	Subgrade	Approved Proof Roll

Table No. 4 – Standard Duty Pavement Section		
1.0"	Asphalt Topcoat	NYSDOT Item 403.178902
2.0"	Asphalt Binder	NYSDOT Item 403.138902
9.0"	Crusher-run Subbase	NYSDOT Item 304.12
	Subgrade	Approved Proof Roll

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It is our experience that flexible pavements do not perform well in locations where repetitive traffic occurs (i.e., in front of overhead doors, loading dock doors, dumpster locations, etc.). We recommend installing a rigid pavement section at these locations. Your structural engineer should assess the proposed truck loading and whether reinforcing steel is required in the concrete section.

8. The NYS Building Code requires special inspection services. The geotechnical inspections will be a combination of in-place soils testing (per ASTM, AASHTO standards) and engineering judgments intended to finalize our design recommendations based on field conditions exposed. As the Geotechnical Engineer of Record, we recommend the following inspections and ask that you include them on your List of Special Inspections developed as part of the Building Permitting Process:
- We recommend that Foundation Design, P.C. make site visits during construction work to finalize our engineering recommendations. This will include confirming that the conditions are as expected, and providing recommendations where conditions differ from those expected. Specifically, we should observe the following:
 - A. Review and approve of fill/backfill material submissions.
 - B. Review the provided soils-related test results and consult on compaction-related issues as they arise.
 - C. IBC Table 1705.6 – 1: Observe the foundation excavation to verify that fill soils are removed and that the native soils are capable of supporting the design load.
 - D. IBC Table 1705.6 – 5: Observe/approve proof-rolling of building and pavement subgrades and confirm unsuitable soils are removed.
 - The owner should retain separate laboratory testing agency services for the following:
 - A. IBC Table 1705.6 – 3 and 4: Conduct at least one field density test per 2,500 square feet of mass fill placed, per lift.
 - B. IBC Table 1705.6 – 3 and 4: Conduct at least one density test per 50 lineal feet of foundation backfill on alternating lifts.
 - C. IBC Table 1705.6 – 3 and 4: Witness/confirm that structural fill was placed in lifts not to exceed 12-inches in loose thickness.

Attached to the end of this text is a GBA paper entitled *Important Information about This Geotechnical Engineering Report* that you should read. It describes how we intend this report to be used and discusses risks and risk allocation. We will continue to work cooperatively with you and other interested parties to achieve win/win solutions.



**Foundation
Design, P.C.**

SOIL • BEDROCK • GROUNDWATER

North Greece Fire District

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This concludes our design phase services. We are available to answer questions that you may have about the data or interpretations of the soil, bedrock, and groundwater conditions.

Sincerely,

FOUNDATION DESIGN, P.C.

James M. Baker, P.E.
President
Enc.



Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it.* A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

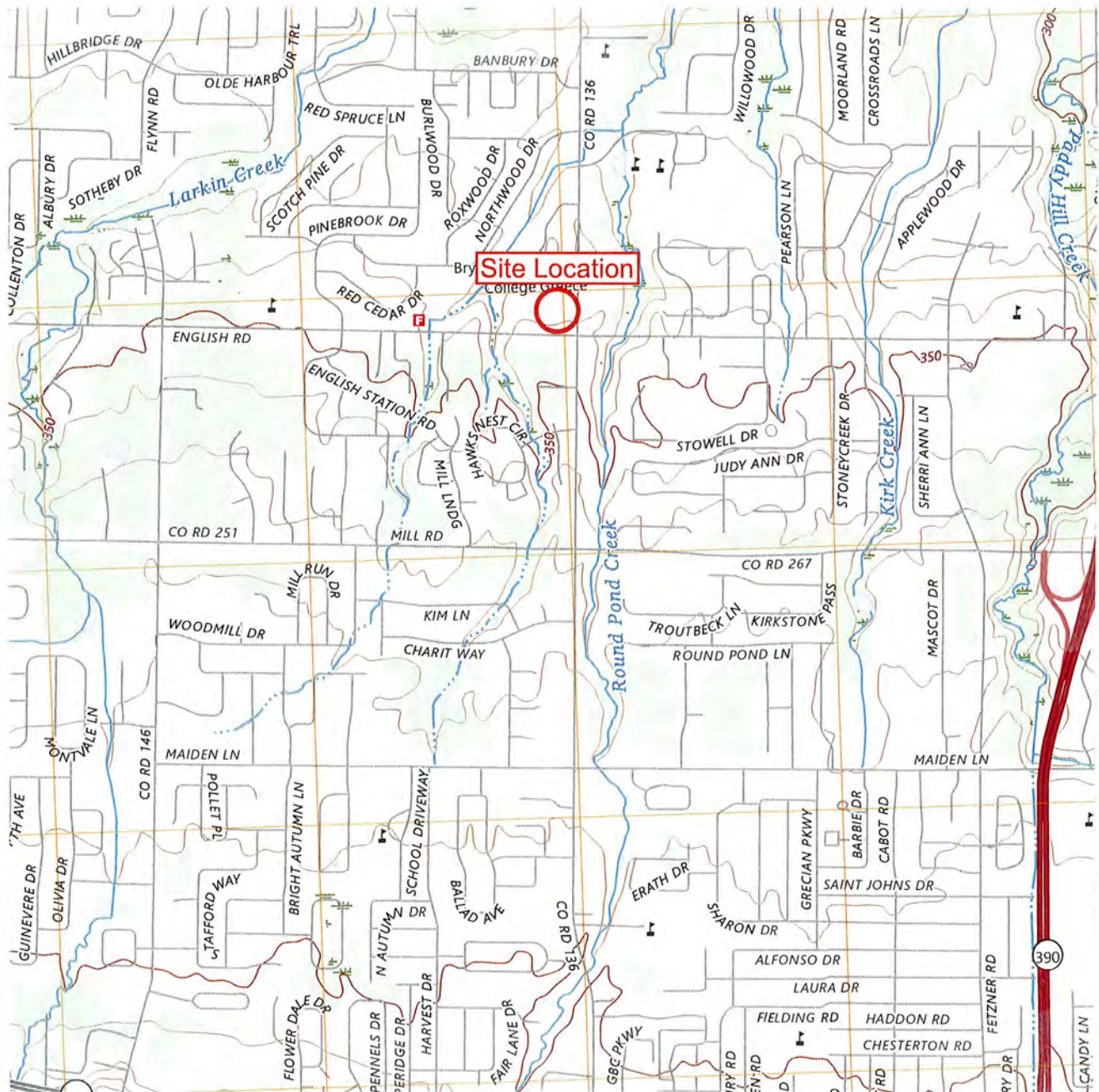
While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



GEOPROFESSIONAL
BUSINESS
ASSOCIATION

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**Foundation
Design, P.C.**

**46A Sager Drive
Rochester, New York 14607**
Phone (585) 458-0824
FAX (585) 458-3323

New Fire Station, English Road Fire House

English Road, Greece, New York

General Location Plan

Adapted from: USGS Topographical Mapping
2023 Rochester West Quadrangle

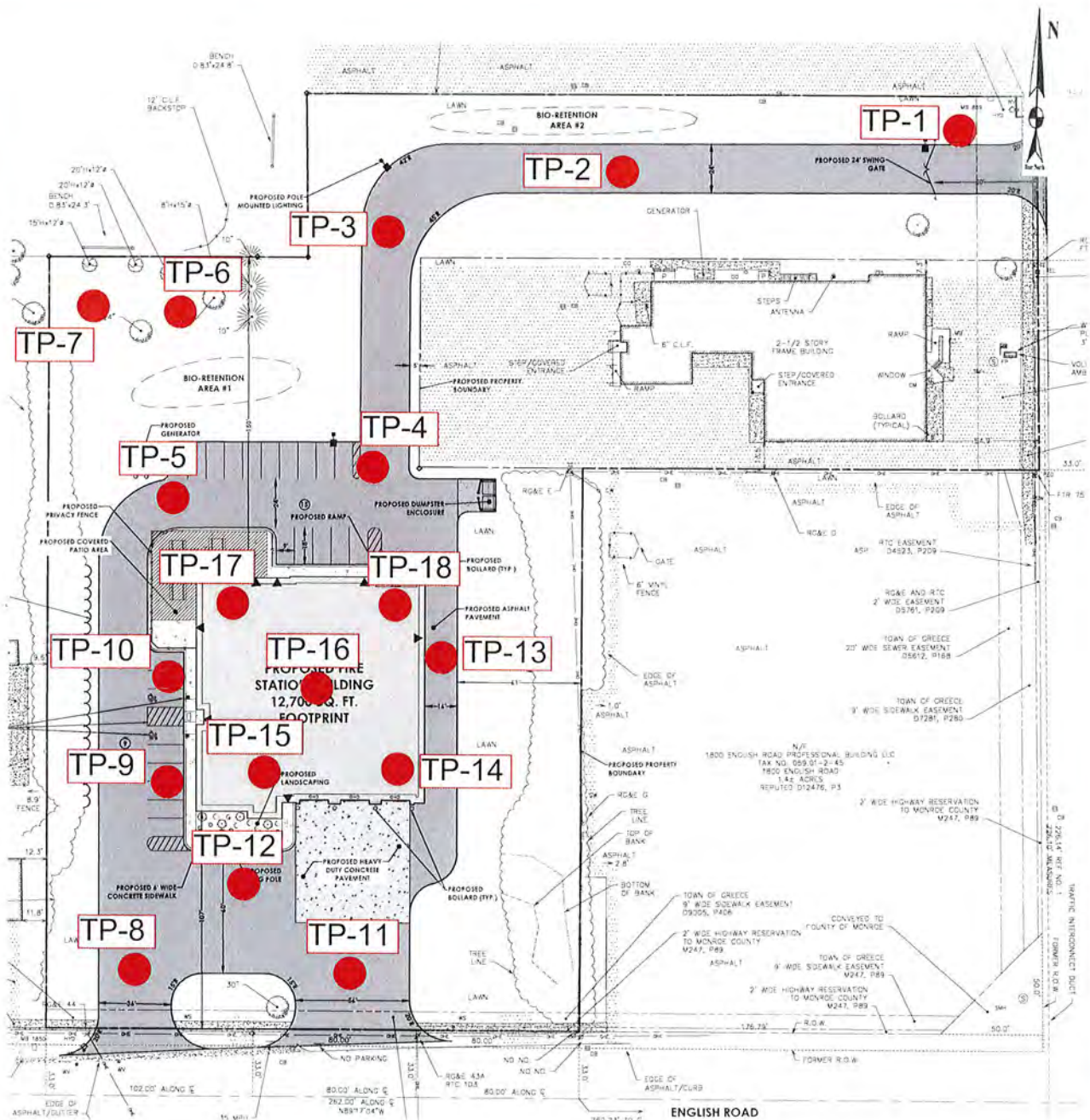
CHECKED BY: **JMB**

DRAWN BY: **RLS**

Scale 1" = 2000'

DATE: **7/15/24**

JOB NO.: **5696.0**



**Foundation
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46A Sager Drive
Rochester, New York 14607
Phone (585) 458-0824
FAX (585) 458-3323

New Fire Station, English Road Fire House

English Road, Greece, New York

Test Pit Location Plan

Adapted from: Passero

Site Plan, North Greece Fire Station

CHECKED BY: JMB

DRAWN BY: LMB

1" = 80'

DATE: 7/25/23

JOB NO.: 5696.0

SOIL DESCRIPTIONS

COHESIVE SOIL

Very fine grained soil. Plastic soil that can be rolled into a thin thread if moist. Clays and silty clays show cohesion.

DESCRIPTION

Very Soft	Extrude between fingers when squeezed
Soft	Molded by light finger pressure
Medium	Molded by strong finger pressure
Stiff	Indented by thumb with effort
Hard	Indented by thumb nail with difficulty

NON-COHESIVE SOIL

Soil composed of silt, sand and gravel, showing no cohesion or very slight cohesion.

DESCRIPTION

Loose
Firm
Compact
Dense
Very Dense

SOIL COMPOSITION

DESCRIPTION

ESTIMATED PERCENTAGE

and	50
some	30-49
little	11-29
trace	0-10

MOISTURE CONDITIONS

dry, damp, moist, wet, saturated
Groundwater measured in the boring or test pit may not have reached equilibrium

SOIL STRATA

TERM

DESCRIPTION

layer	Soil deposit more than 6" thick
seam	Soil deposit less than 6" thick
parting	Soil deposit less than 1/8" thick
varved	Horizontal uniform layers or seams of soil

GRAIN SIZE

MATERIAL	SIEVE SIZE
Boulder	Larger than 12"
Cobble	3" to 12"
Gravel - coarse	1" to 3"
- medium	3/8" to 1"
- fine	No. 4 to 3/8"
Sand - coarse	No. 10 to No. 4
- medium	No. 40 to No. 10
- fine	No. 200 to No. 40
Silt and Clay	Less than No. 200

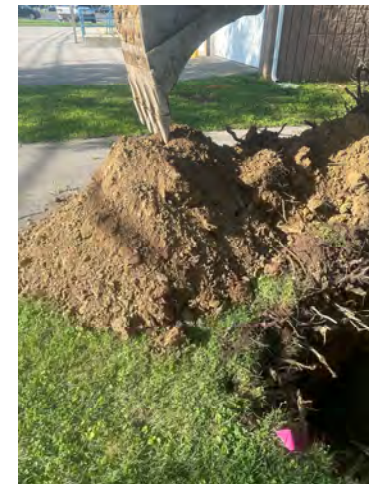


SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-1
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±336.5	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC
4. Large trees on property with large root balls

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL (rootmat) <div>1'10"</div> Firm tan-brown moist medium to fine SAND, some silt
4			
6			<div>4'6"</div> Test Pit Terminated at 4'6"
8			
10			
12			



SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-2
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±335.5	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors		Equipment	CAT 308E2			

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Loose to firm tan-brown moist fine to medium SAND, some silt
4	S-1	3'0"	Water seepage at 4'
6			<div>4'4"</div> Test Pit Terminated at 4'4"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
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SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-3
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±336.5	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'2" Firm brown moist medium to fine SAND, some silt
4			Water seepage at 3'8"
6			5'0" Test Pit Terminated at 5'0"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
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SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-4
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±338.5	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Firm to compact brown moist medium to fine SAND, some silt
4	S-1	3'0"	Water seepage at 3'4"
6			<div>5'0"</div> Test Pit Terminated at 5'0"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
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SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-5
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±339.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Firm to compact brown moist medium to fine SAND, some silt
4			
6			<div>5'0"</div> Test Pit Terminated at 5'0"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-6
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±338.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'0"</div> Firm to compact moist medium to fine SAND, some silt
4			
6	S-1	4'0"	<div>4'6"</div> Test Pit Terminated at 4'6"
8			
10			
12			



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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-7
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±338.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Site Pictures



Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'0"</div> Firm to compact brown moist medium to fine SAND, some silt
4			<div>4'0"</div> Water seepage at 4'8"
6			Compact gray damp to moist very fine SAND, little silt <div>5'0"</div> Test Pit Terminated at 5'0"
8			
10			
12			

Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-8
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±343.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Firm brown moist medium to fine SAND, some silt
4			
6			Water seepage at 4'6" <div>6'0"</div>
8			Test Pit Terminated at 6'0"
10			
12			

Site Pictures



Notes:

1. Sides collapsed upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



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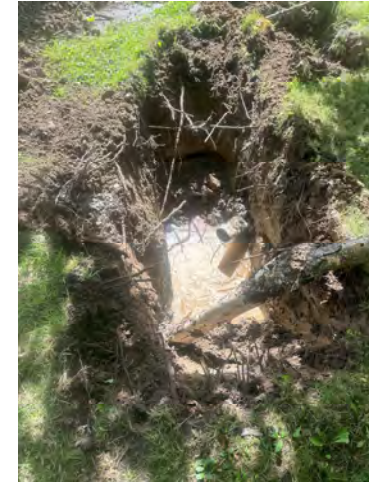
SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-9
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±341.0	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'0" FILL: Firm brown moist SAND, some silt, little gravel Drainage pipe at 2'
4			3'0" Firm brown moist medium to fine SAND, some silt
6			4'0" Test Pit terminated at 4'0"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Water at 3' below grade on completion.
3. Staked location provided by FDPC



**Foundation
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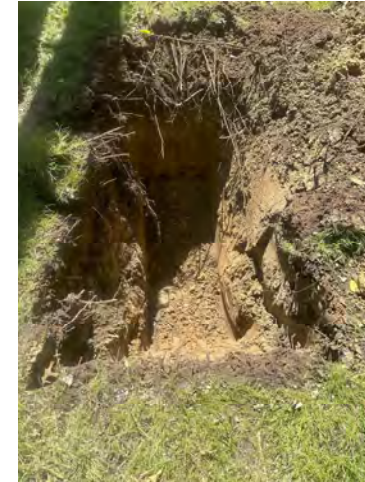
SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-10
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±340.5	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Firm to compact brown moist medium to fine SAND, some silt
4			
6	S-1	4'8"	<div>5'0"</div> Test Pit Terminated at 5'0"
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-11
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±345.0	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors		Equipment	CAT 308E2			

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPOSOIL <div>0'10"</div> FILL: Firm tan-brown mottled moist medium to fine SAND, some silt, trace gravel, trace slag
4			<div>3'0"</div> Firm tan-brown most medium to fine SAND, some silt
6			Water seepage at 6'0"
8			<div>7'0"</div> Test Pit Terminated at 7'0"
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
Design, P.C.**

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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-12
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±342.5	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'0" FILL: ASH and CINDERS 1'4" Firm tan-brown moist medium to fine SAND, some silt
4			
6			Water Seepage at 5'4" 6'0"
8			Test Pit Terminated at 6'0"
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
Design, P.C.**

SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-13
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±339.0	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications
			Remarks
2			TOPSOIL 0'8"
			FILL: Firm brown moist SAND, little silt (wire conduit at 8")
			Drainage pipe at 10" 1'6"
			Firm to compact brown moist medium to fine SAND, some silt
4			Test Pit Terminated at 4'0"
6			
8			
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Water at 2' on completion.
3. Staked location provided by FDPC



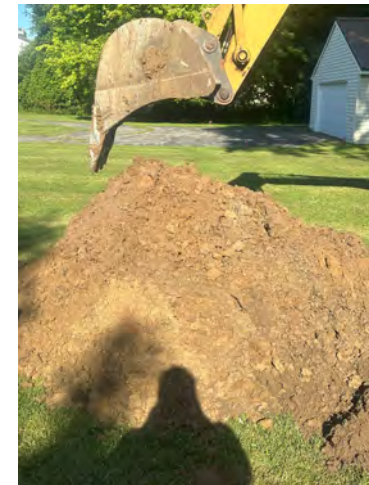
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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-14
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±340.5	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL 1'8" FILL: Loose to firm tan-brown moist medium to fine SAND, some silt
4			Leach field with gravel at 3'6" Firm tan-brown moist medium to fine SAND, some silt 3'6"
6			Water seepage at 6'0" 6'0"
8			Compact gray-brown damp to moist SILT, trace to little sand 8'0"
10			Test Pit Terminated at 8'0"
12			

Site Pictures



Notes:

1. Sides sloughed in upon completion.
2. Water at 7' below grade upon completion
3. Staked location provided by FDPC



SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-15
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±341.0	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors		Equipment	CAT 308E2			

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'0" FILL: Firm tan-brown moist medium to fine SAND, some silt Drainage pipe at 2'
4			3'0" Firm tan-brown moist medium to fine SAND, some silt Water seepage at 4'
6	S-1	6'6"	6'0"
8			Compact gray-brown moist very fine SAND, some silt 7'4" Test Pit terminated at 7'4"
10			
12			

Site Pictures



Notes:

1. Sides sloughed in upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
Design, P.C.**

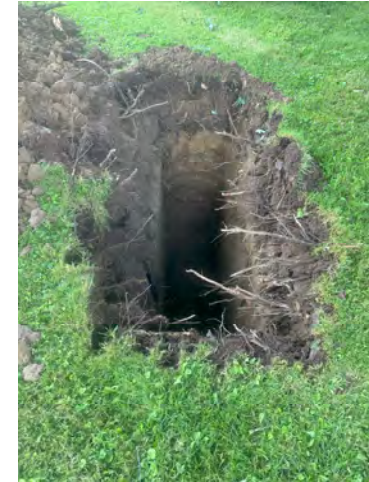
SOIL • BEDROCK • GROUNDWATER

Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-16
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±340.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'8" Firm to compact brown moist medium to fine thinly bedded SAND, some silt
4			Water seepage at 3'
6			
8			6'6" Compact gray-brown SILT, trace sand 7'0" Test Pit Terminated at 7'0"
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-17
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±339.0	Weather	70's, Sunny		Technician	L. Becker	
Date Started	7-19-24	Completed	7-19-24		Operator	G. Duvall	
Backhoe Subcontractor	Bayside Paving Contractors		Equipment	CAT 308E2			

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
			TOPSOIL
2			1'6"
			Firm to compact brown moist medium to fine SAND, some silt
4			Water seepage at 3'
6			6'0"
			Compact gray-brown damp to moist very fine SAND, trace silt 6'6"
8			Test Pit Terminated at 6'6"
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



**Foundation
Design, P.C.**

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Test Pit Log

Project No.	24.05696	Page	1	of	1	Test Pit No.	TP-18
Project Name	North Greece Fire Station, English Road, Greece, New York						
Client	North Greece Fire District, 1766 Latta Road, Rochester, New York 14612						
Elevation	±339.0	Weather	70's, Sunny			Technician	L. Becker
Date Started	7-19-24	Completed	7-19-24			Operator	G. Duvall
Backhoe Subcontractor	Bayside Paving Contractors			Equipment	CAT 308E2		

Depth Below Surface	Sample Number	Depth of Sample	Soil and Rock Classifications Remarks
2			TOPSOIL <div>1'6"</div> Firm to compact brown moist medium to fine SAND, some silt
4			
6			Water seepage at 4'6" <div>6'0"</div>
8	S-1	6'4"	Compact brown damp to moist SILT, trace sand <div>6'6"</div> Test Pit Terminated at 6'6"
10			
12			

Site Pictures



Notes:

1. Sides vertical upon completion.
2. Dry on completion.
3. Staked location provided by FDPC



Foundation Design, P.C.

SOIL • BEDROCK • GROUNDWATER

July 22, 2024

North Greece Fire District
1766 Latta Road
Rochester, New York 14612

Attention: Mr. Jeffery Gates

Reference: New Fire Station, English Road Fire House
English Road, Greece, New York
Laboratory Test Results, 5696.0

Dear Mr. Gates:

Foundation Design, P.C. is pleased to present the following results of the laboratory testing performed on the referenced project. The testing was performed in accordance with the following ASTM test methods:

3	Sieve Analysis	ASTM D-1140
3	Moisture Content Test	ASTM D-2216

We appreciate the opportunity to provide these testing services and look forward to hearing from you again in the near future.

Sincerely,

FOUNDATION DESIGN, P.C.

Ryan Radford, P.E.
Vice President



**Foundation
Design, P.C.**

**New Fire Station, English Road Fire House
English Road, Greece, New York
5696.0**

July 22, 2024

**Moisture Content Test Report
(ASTM D-2216)**

Moisture Content Test Results			
Boring Number	TP-2	TP-10	TP-15
Sample Number	S-1	S-1	S-1
Depth	3'	4'8"	6'6"
Moisture Content (%)	24.0	14.2	10.6

Particle Size Distribution Report

ASTM D422

PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	74	23	

Test Results (ASTM D422)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/4"	100			
#4	100			
#10	100			
#20	99			
#40	97			
#60	94			
#100	86			
#140	36			
#200	23			

* (no specification provided)

Material Description

SM: Dark brown silty sand per ASTM D-2488

Atterberg Limits

PL= LL= NV PI=

Coefficients

D₉₀= 0.1675 D₈₅= 0.1479 D₆₀= 0.1241
D₅₀= 0.1173 D₃₀= 0.0968 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

Test performed on 423.02 grams of oven dried sample

Source of Sample: TP-2 Depth: 3'
Sample Number: S-1

Sample Date: 7/22/24



**Foundation
Design, P.C.**

Client: North greece Fire District 166 Latta Road, Rochester, New York 14612

Project: New Fire Station, English Road Fire House

Project No: 5696.0

Figure

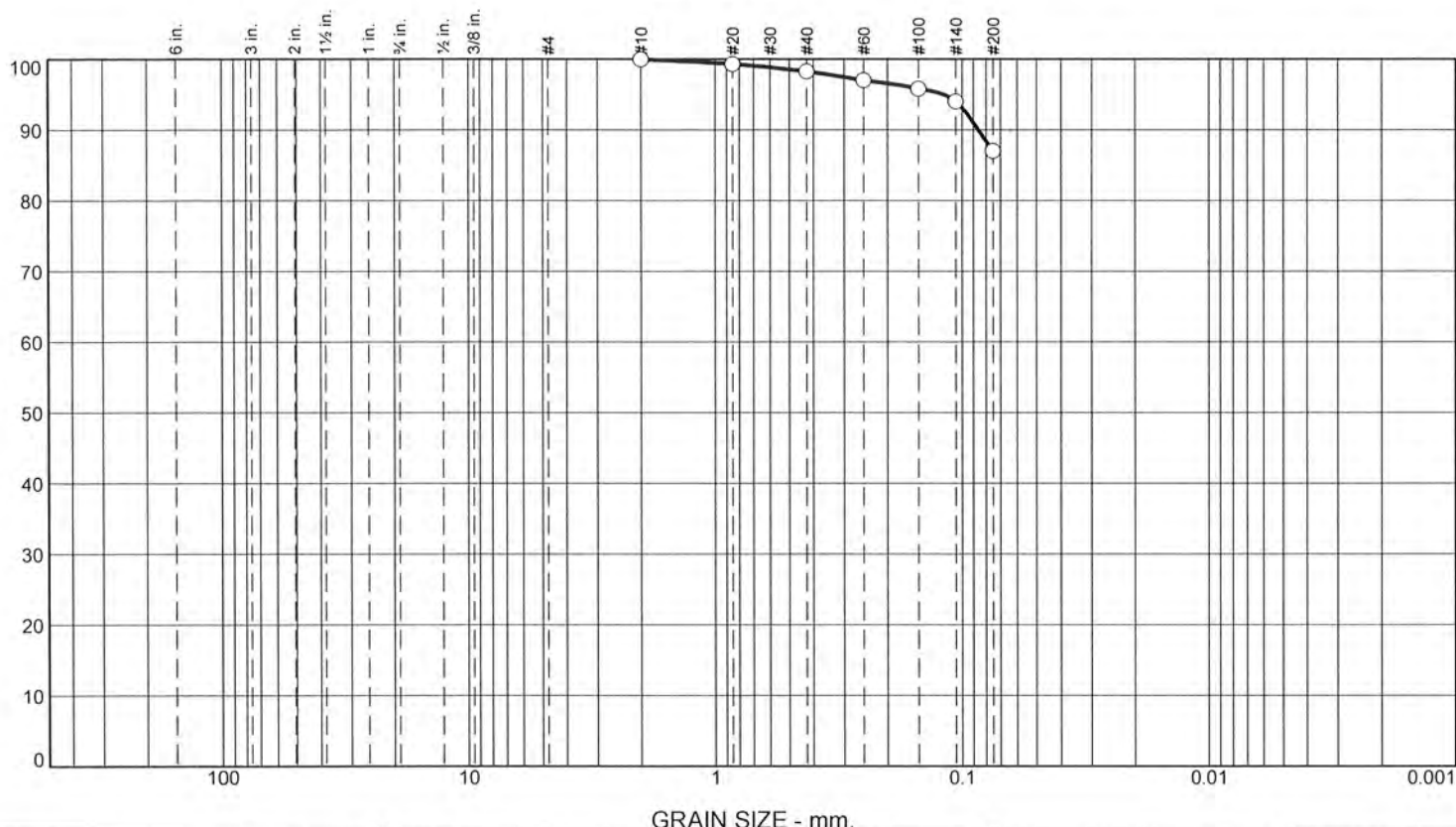
Tested By: RLS

Checked By: JAG

Particle Size Distribution Report

ASTM D422

PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	11	87	

Test Results (ASTM D422)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#10	100			
#20	99			
#40	98			
#60	97			
#100	96			
#140	94			
#200	87			

Material Description

ML: Dark tan brown silt per ASTM D-2488

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.0858 D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

Test performed on 476.09 grams of oven dried sample

* (no specification provided)

Source of Sample: TP-10
Sample Number: S-1

Depth: 4'8"

Sample Date: 7/22/24



**Foundation
Design, P.C.**

Client: North greece Fire District 166 Latta Road, Rochester, New York 14612

Project: New Fire Station, English Road Fire House

Project No: 5696.0

Figure

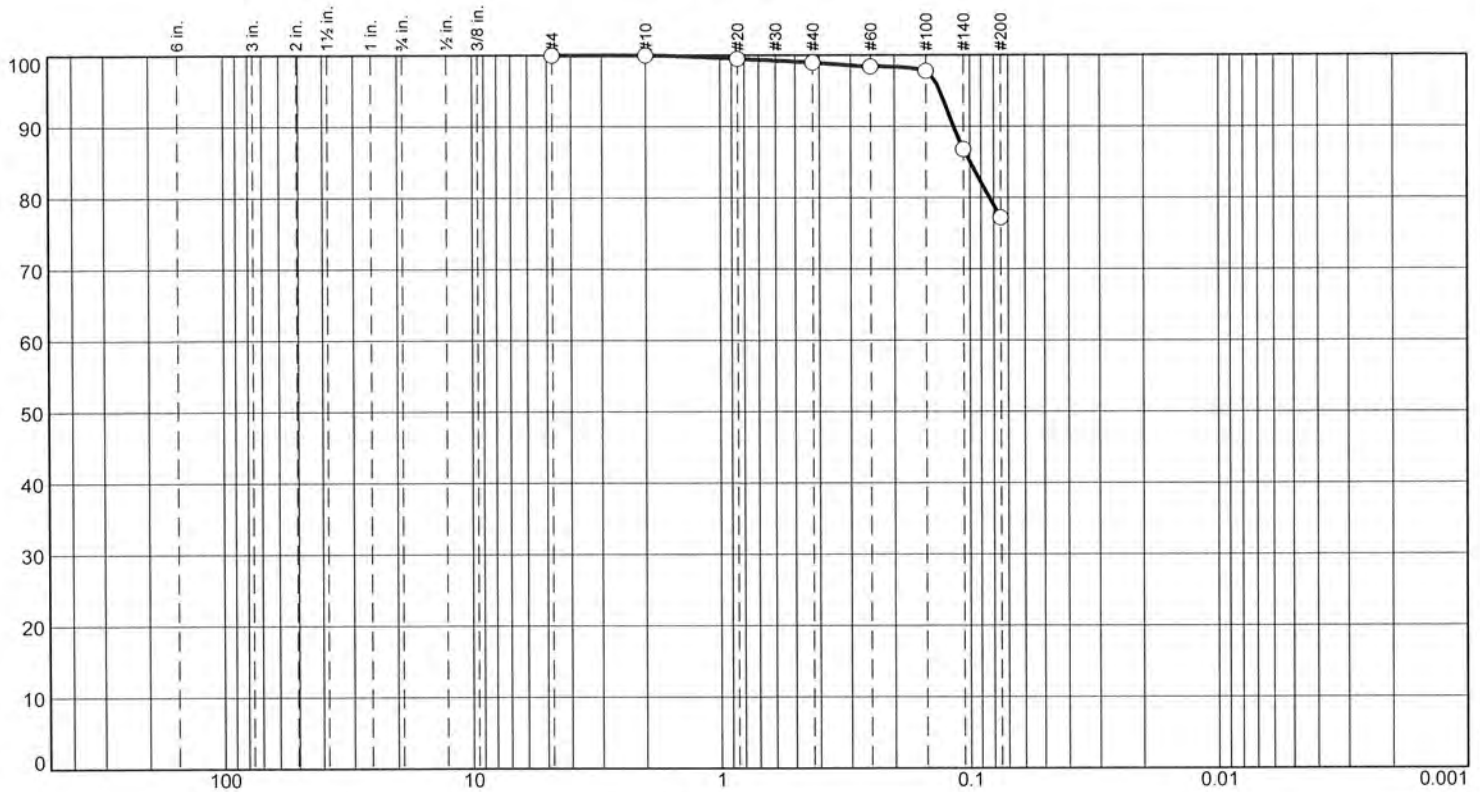
Tested By: RLS

Checked By: JAG

Particle Size Distribution Report

ASTM D422

PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	22	77	

Test Results (ASTM D422)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#4	100			
#10	100			
#20	100			
#40	99			
#60	98			
#100	98			
#140	87			
#200	77			

* (no specification provided)

Material Description

ML: Dark tan brown silt with sand per ASTM D-2488

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.1159 D₈₅= 0.0996 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

Test performed on 715.48 grams of oven dried sample

Source of Sample: TP-15
Sample Number: S-1

Depth: 6'6"

Sample Date: 7/22/24



**Foundation
Design, P.C.**

Client: North greece Fire District 166 Latta Road, Rochester, New York 14612

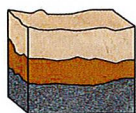
Project: New Fire Station, English Road Fire House

Project No: 5696.0

Figure

Tested By: RLS

Checked By: JAG



Foundation Design, P.C.

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August 14, 2024

North Greece Fire District
1766 Latta Road
Rochester, New York 14612

Attention: Mr. Jeffery Gates

Reference: New Fire Station, English Road Fire House
English Road, Greece, New York
Summary Letter, E5696.1

Dear Mr. Gates:

This letter summarizes the results of the CME Associates, Inc Shear Wave Test for the new English Road Fire House. We understand that you are in the process of assessing the site classification for the new Fire Station. To assess the seismic site classification, we retained CME Associates to perform a geophysical surficial test analysis of the shear wave velocity of the upper 100 feet of the soil profile. The testing was performed on August 12, 2024. Three survey lines were documented, having an average shear wave velocity of 1567.0 ft/sec, which is within the range for Site Class C. A copy of the CME Associates investigation report is enclosed.

Based on their test results, we recommend designing the building using a Seismic Site Classification of C (Very Dense Soil). Based on the 2020 NYS Building Code guidelines (ASCE 7-16), we recommend using the following seismic design parameters. For the design of retaining walls over six feet in height, use Peak Ground Acceleration (PGA) of 0.087g and a PGA_M of 0.113g.

Table No. 1 – Seismic Design Parameters					
Spectral Response Acceleration		Mapped Spectral Response Acceleration		Design Spectral Response Acceleration	
S_s	S_1	S_{MS}	S_{M1}	SD_s	SD_1
0.160g	0.048g	0.208g	0.072g	0.139g	0.048g

This concludes our additional services. Forward a copy of the near final plans and specifications for our review, comment, and use during construction. It has been a pleasure to work with you on this project and we look forward to hearing from you as it proceeds towards construction.

Sincerely,

FOUNDATION DESIGN, P.C.

Ryan J. Radford, P.E.
Vice President



6035 Corporate Drive
East Syracuse, New York 13057
(315) 701-0522
(315) 701-0526 (Fax)
www.cmeassociates.com

Transmittal

August 14, 2024

Foundation Design, P.C. (Client)
46A Sager Drive
Rochester, New York 14607
Phone: 585.458.0824

Attn: Ryan Radford, P.E., Vice President
rradford@foundationdesignpc.com

Re: 1800 English Road Project
Rochester, New York
CME Project No.: 28230-05

Gentlepeople:

Attached you will find....

<u>Number of Copies</u>	<u>Report Number</u>	<u>Description</u>
1	28230E-01-0824	Geophysical Investigation Report

The above report was emailed to Ryan Radford at rradford@foundationdesignpc.com on 08/14/2024.

Respectfully submitted,
CME Associates, Inc.

A handwritten signature in black ink that reads "Kyle Shepherd".

Kyle Shepherd, E.I.T.
Staff Geotechnical Engineer

Geophysical Investigation Report

1800 English Road Project Rochester, New York

Prepared For:

Foundation Design, P.C.

Attn: Ryan Radford, P.E., Vice President
46A Sager Drive
Rochester, New York 14607
Phone: 585.458.0824
Email: rradford@foundationdesignpc.com

Prepared by:

CME Associates, Inc.

Attn: Kyle Shepherd, E.I.T and
Anas N. Anasthas, P.E.
6035 Corporate Drive
East Syracuse, New York 13057
Phone: 315.701.0522 Ext. 260
Fax: 315.701.0526
Email: kshepherd@cmeassociates.com

**CME Report No.: 28230E-01-0824
August 14, 2024**

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CME Report No. 28230E-01-0824

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Geophysical Investigation Report 1800 English Road Project Rochester, New York

1.0 INTRODUCTION

CME Associates, Inc. (CME) conducted a Geophysical Investigation consisting of a surficial seismic survey to determine vertical seismic shear wave velocity profiles at the subject project site. This report presents the shear wave velocity (V_s) measurements obtained from the surficial seismic survey.

The fieldwork and this report have been provided pursuant to the execution of CME Proposal/Agreement No.: 05.7678, dated 08/07/2024, executed by Foundation Design, P.C. (Client) on 08/09/2024.

2.0 GEOPHYSICAL INVESTIGATION

A Surface-wave Analysis was conducted for indirect measurement of seismic shear wave velocity (V_s) using MASW (Multichannel Analysis of Surface Waves) and MAM (Microtremor Array Measurement) methods. These survey methods are less time consuming and more cost effective, compared to the direct measurement methods, such as Crosshole and Downhole Seismic Testing; these practices are widely utilized and accepted in the geotechnical profession.

2.1 Theory and Application

Recently, surface wave methods have become the seismic techniques most often used to estimate the V_s structure of soil because of their non-invasive nature and greater efficiency in data acquisition and processing (Park and Miller, 2004). Surface waves are a form of mechanical waves that propagate while attenuating (breaking down) along the interface of strata. The signal-to-noise ratio for surface waves is stronger than that of body waves (primary and secondary waves) (Park, Miller and Xia, 1999). Love waves and Rayleigh waves are formed by surface waves; however, the Surface-wave Analysis method focuses on Rayleigh waves.

Particle motion of Rayleigh waves in a homogeneous medium moving from left to right is elliptical in a counterclockwise (retrograde) direction along the free surface (Xia, et al., 2004). As Rayleigh waves propagate through the ground, wave frequency (or wavelength) is altered by vertical variation in V_s . Variation in wave frequency has a direct relationship with wave velocity. The velocity at which the phase of a certain wave frequency travels is called phase velocity. A property known as dispersion develops by propagation of phase velocities (Park, Miller and Xia, 1999).

Longer wavelengths (lower frequencies) are more sensitive to elastic properties of deeper layers, therefore have greater phase velocity and penetrate further underground. Shorter wavelengths are more sensitive to physical properties of near-surface layers (Xia, Miller and Park, 1999). Within the range of frequencies recorded from the survey, the strongest energy waveforms will have the highest signal-to-noise ratio, termed the Fundamental Mode (M0). Any higher modes or body waves within recorded data are considered noise. By recording M0 Rayleigh waves propagating horizontally and directly from the seismic source to receiver, the dispersive properties directly beneath the source and receiver spread can be measured and usually represented by a curve (called Dispersion Curve) depicting variation of phase velocities with frequency (Park and Miller, 2004). This curve is then used to back-calculate the vertical variation of Vs and construct a one-dimensional (1D) Vs profile. An overview of procedure for data collection and processing is depicted below in Figure 1.

Determined Vs of waves are used to interpret the structure of soil layers because of the close relationship Vs has to shear strength and stiffness of soil (Park et al., 2007). An increase or decrease in Vs demonstrates a greater or reduced shear strength and stiffness of soil layer.

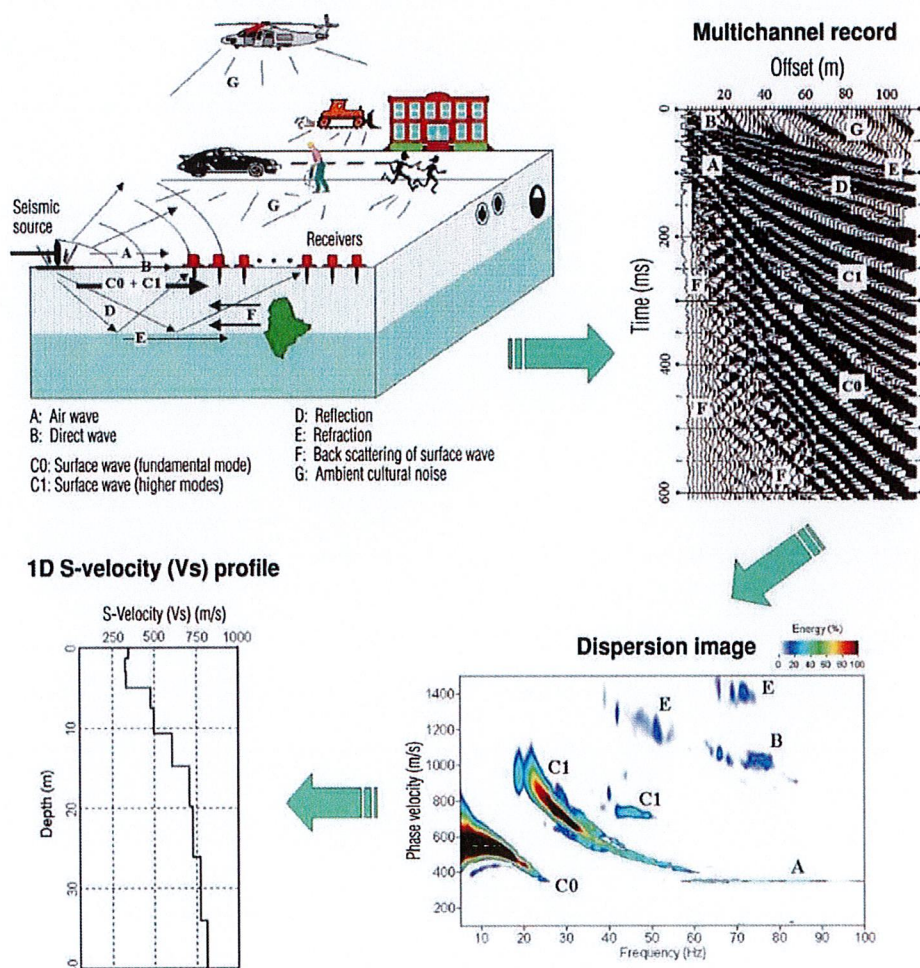


Figure 1. Overall procedure for data collection and processing.

2.2 Equipment

The data collection for the surface wave analysis was achieved by utilizing an underground imaging tool (Geometrics ES-3000 Seismograph) and data acquisition software (Seismodule Controller). As illustrated in Figure 2, attached to the seismograph is a channel cable, power cable, Ethernet cord, and time break (trigger) cable. The channel cable has 24 connectors used to connect receivers along a spread. The receivers are geophones coupled to the ground within a spread configuration at desired intervals of spacing. The power cable is equipped to a battery to power the seismograph.

An Ethernet cord is used to connect the seismograph to a computer for data collection via the Seismodule Controller software. A time break cable is attached to the upper handle of a sledgehammer, which sends a signal to the seismograph at hammer strike, initiating a recording. A metal strike plate is placed at a fixed off-set distance away from the receiver spread, amplifying dynamic energy when struck by the hammer. Once the hammer strikes the plate, vibrational impulses felt in the geophones are transported via the channel cable, acquired by the seismograph, and recorded on the computer.

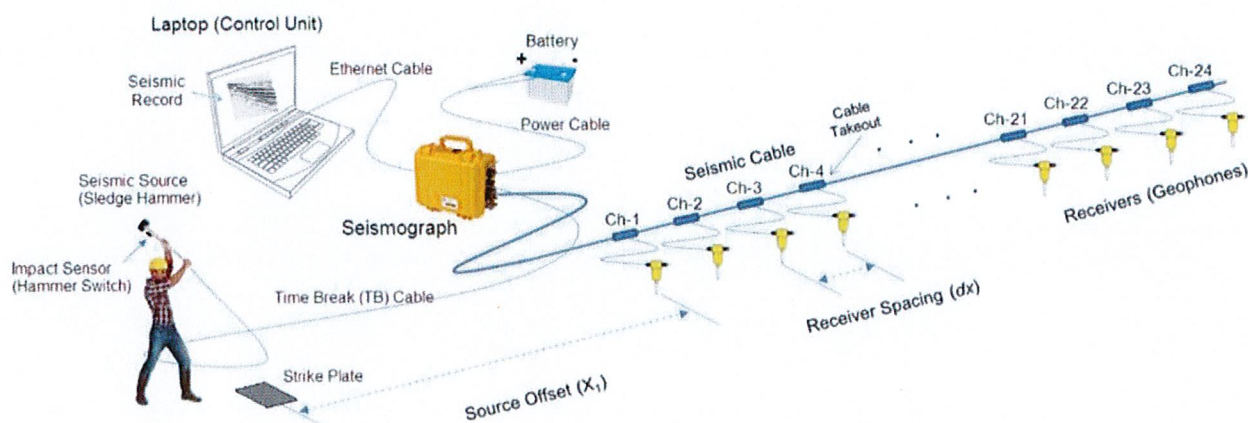


Figure 2. Typical field configuration with an active source survey.

2.3 Methodology

There are two methods used for Surface-wave Analysis: active (MASW) and passive (MAM) source surveying. Both techniques are employed along the same spread configuration, but with different data quality for underlying strata. To perform an active survey, a dynamic source (such as a sledgehammer) provides surface wave data. To perform a passive survey, noise from ambient energy sources (such as traffic or wind) provides surface wave data.

As explained in the Geometrics *SeisImager/SW Manual*, the investigation depth for active surveys is approximately half the spread length, and that for passive surveys is approximately equal to the spread length. Lower frequency Rayleigh waves can penetrate deeper and propagate faster than higher frequencies, providing deeper Vs soil surveys. Higher frequencies will provide higher resolution of data at shallower depths. An active survey emits, and records higher frequency surface waves compared to passive surveys. When active and passive source files are combined by vertically stacking both sets of image data (as shown in Figure 3), two trends are merged naturally to make one continuous trend over a broader bandwidth (Park, et al. 2007). Therefore, a combination of both techniques will optimize resolution throughout the profile.

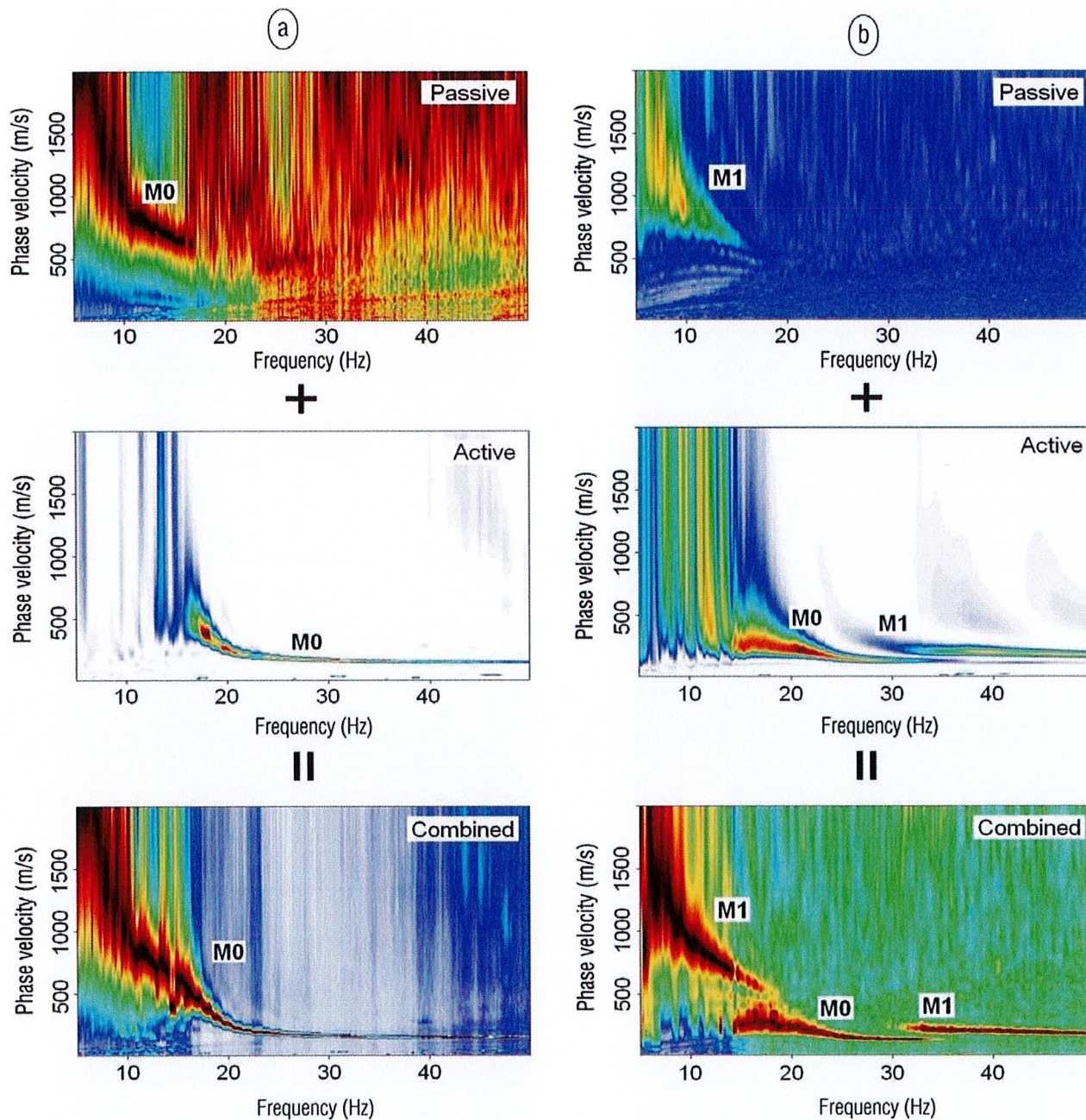


Figure 3. Dispersion images from passive and active sources are combined to enlarge dispersion bandwidth.

2.4 Data Acquisition and Processing

To acquire and process data after equipment setup completion, a *Seismodule Controller* and *SeisImager/SW* software are used. Procedures for data acquisition are followed as outlined in the *Geometrics SeisImager/SW Manual*.

Parameters set in the *Seismodule Controller* for active and passive surveys are listed below. A few of these parameters are illustrated in Figure 4.

- **Spread configuration** – Layout of receivers
- **Receiver spread** – Distance between first and last receiver
- **Receiver spacing** – Distance interval between each receiver
- **Receiver type** – Method of collecting seismic energy
- **Receiver count** – Amount of receivers
- **Source-receiver offset** – Distance between source and first receiver
- **Seismic source** – Method used for dynamic energy
- **Sample interval** – Time between recorded samples
- **Record length/count** – Allotted time for data acquisition (and number of files with MAM)
- **Stacking** – Way to increase signal-to-noise ratio (with MASW) by layering “shots” (field records).

Once parameters are set and the first shot ran (for the MASW), a shot record displays all seismic waves in a tapered layout, indicative of dispersion (Figure 1). Further processing is performed within *SeisImager/SW* software using *Pickwin* and *WaveEq* modules (Figure 5). Within *Pickwin*, the shot record waveform is converted into a phase velocity vs. frequency plot (Figure 1). In *WaveEq*, the Dispersion Curve is displayed and optimized by removing any interference of noise (Figure 6a). Based on the Dispersion Curve, an initial model of Vs is back-calculated. Given the initial model, a best fit line using an iterative inversion with the Least Square Method is calculated to generate the Final one-dimensional (1D) Vs profile (Figure 6b) (Xia, Miller and Park, 1999).

Green points defining the dark grey shaded section of Figure 6b represent the best indicator of the reliable depth range of penetration calculated using one-third wavelength approximation. Geophone reception of frequency vibrations will reach a depth limit when attenuation (loss of energy) is too large. Survey results for depths below the dark grey shaded section generally tend to yield poor accuracy and may not represent a true representation of the Vs profile. Such depth ranges will be indicated by light grey shaded sections to call attention to use caution when interpreting the survey results. For a Combined Vs profile, respective Dispersion Curves for active and passive surveys are appended within *WaveEq* and processed.

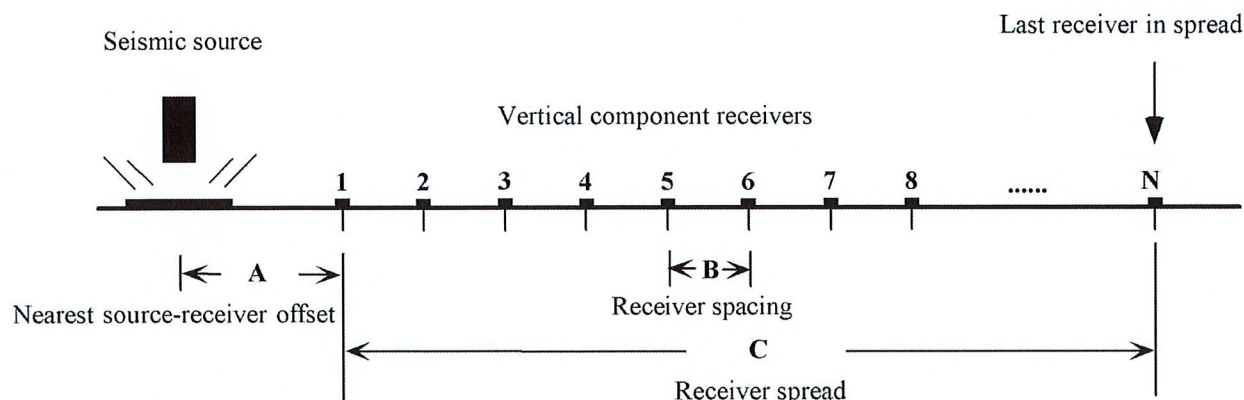


Figure 4. Three acquisition parameters for active source field configuration

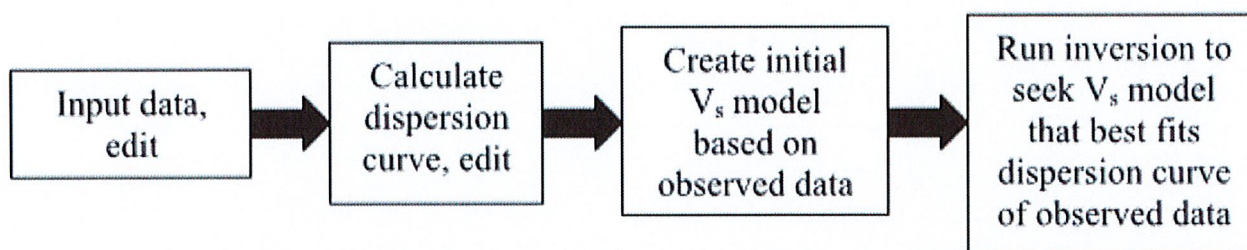


Figure 5. General processing flow using SeisImager/SW software.

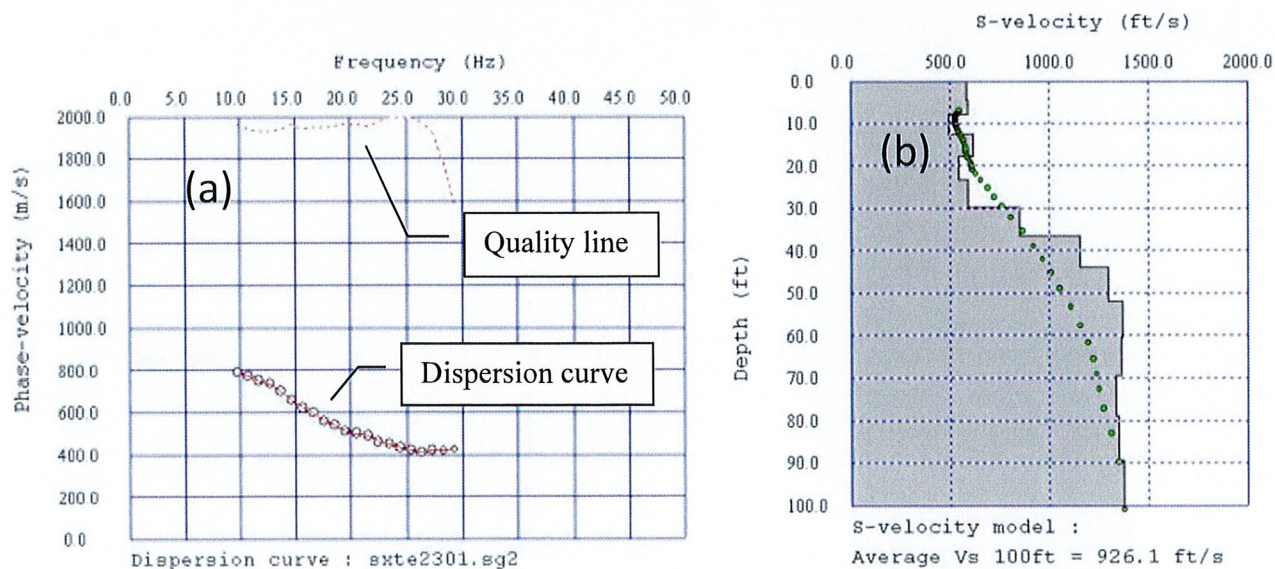


Figure 6. (a) Example of Dispersion Curve and Quality Line. Quality Line is used to assess Dispersion Curve quality based on signal amplitude. (b) Example of Final 1D Vs profile. Green points represent one-third wavelength approximation.

2.5 Results

The field data collection for the Surface-wave Analysis was conducted at the subject project site on 08/12/2024. The survey locations were selected by CME. A total of 3 survey lines (Line 1 to Line 3) were surveyed using both active (MASW) and passive (MAM) sources. Data from this survey was recorded using 24 vertical component 4.5 Hz geophones coupled to the ground using spikes. For each survey, the geophones were equally spaced at 5 feet apart along a 115-foot linear spread. For active source surveys, an 8-pound sledgehammer with a shot on a strike plate, placed at an offset of 15 feet, provided dynamic energy. Multiple shots were made at each survey line to stack data. Shots were obtained at both ends of the survey line. The record length was 2.0 seconds with a 0.25 millisecond sample interval. For passive source surveys, a minimum of 20 records of ambient energy were compiled for each survey line. The record length was 32 seconds with a 2.0 millisecond sample interval.

The raw data collected in the field was processed in the CME office. Dispersion Curves for active and passive source surveys at each survey line were combined to create a Final 1D Vs Profile. Figure 7 shows a site plan view of the survey lines. Dispersion Curve and 1D Vs Profile for the survey lines are presented in Figures 8 to 10. Site pictures for Line 1 to Line 3 are shown in Figures 11 to 13. A summary of Average Shear Wave Velocity, Vs, calculated for each survey line (in accordance with Section 20.4.1 of ASCE 7) is presented in Table 1.

Table 1: Average Vs (Calculated per Section 20.4.1 of ASCE 7)		
Survey Line No.	Vs (ft/sec)	Remarks
1	1439.9	1, 2
2	1556.8	1, 2
3	1703.9	1, 2
Remarks:		
1. Wind was noted during the collection of passive survey data.		
2. Light rain occurred on-site the morning before the start of the survey.		

Site name : 1800 English Road Project

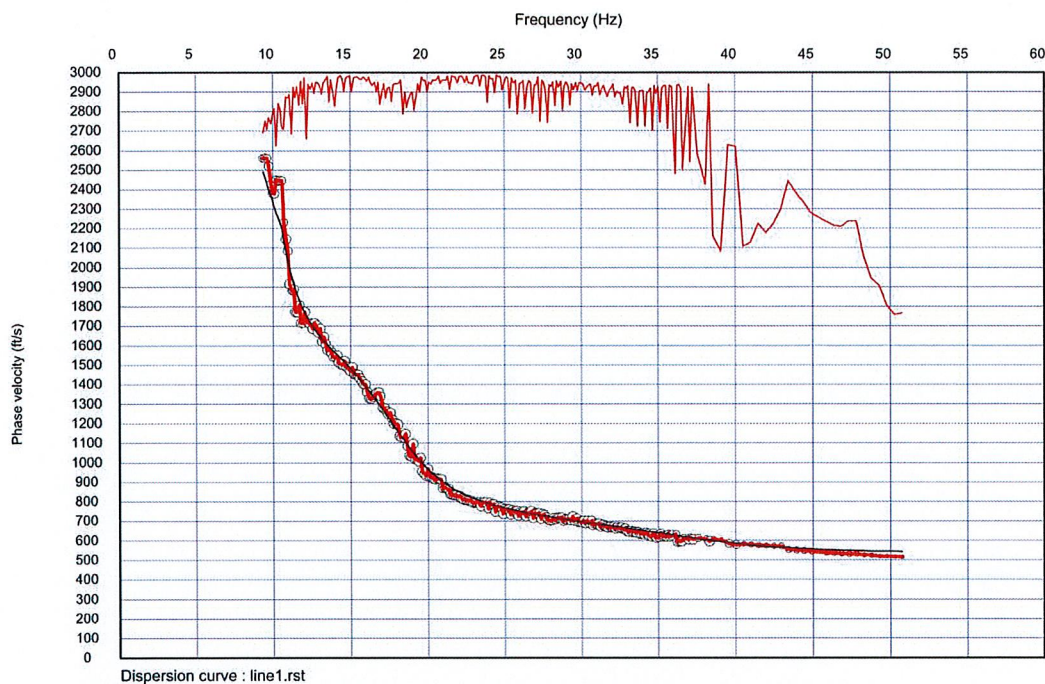


Figure 8a. Survey Line 1: Dispersion Curve

Site name : 1800 English Road Project

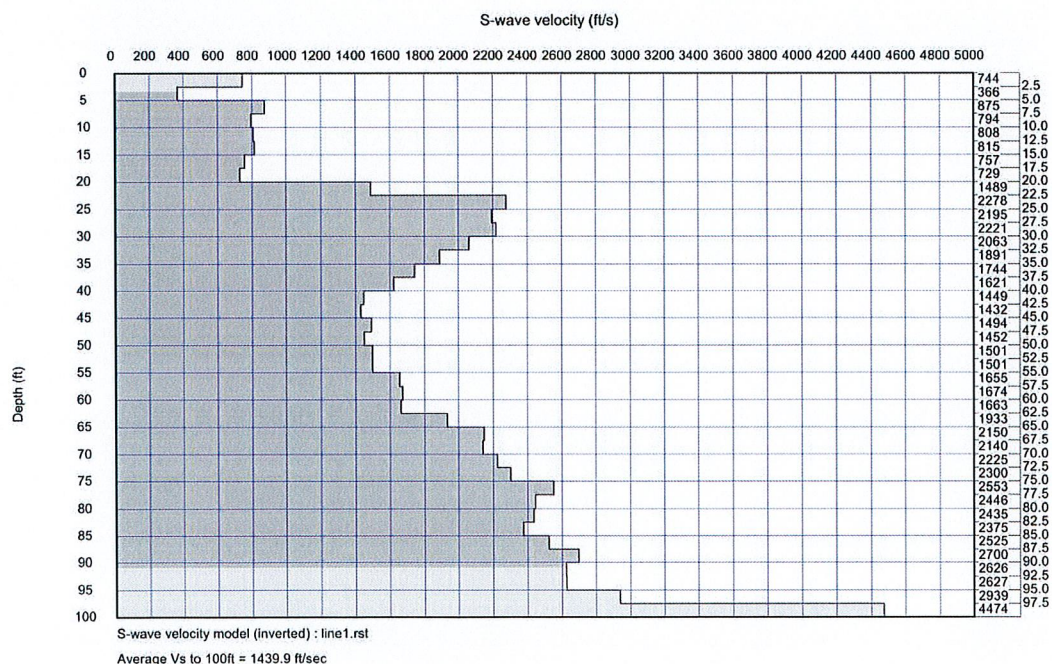


Figure 8b. Survey Line 1: 1D Vs Profile.

Please note, as explained in Report Section 2.4, dark grey shaded section of the above Vs Profile represents the best indicator of the reliable depth range of wave penetration for the model. The light grey shaded sections represent ranges of depth where results are generally less accurate and/or unreliable, and thus, caution shall be exercised when interpreting the survey results.

Site name : 1800 English Road Project

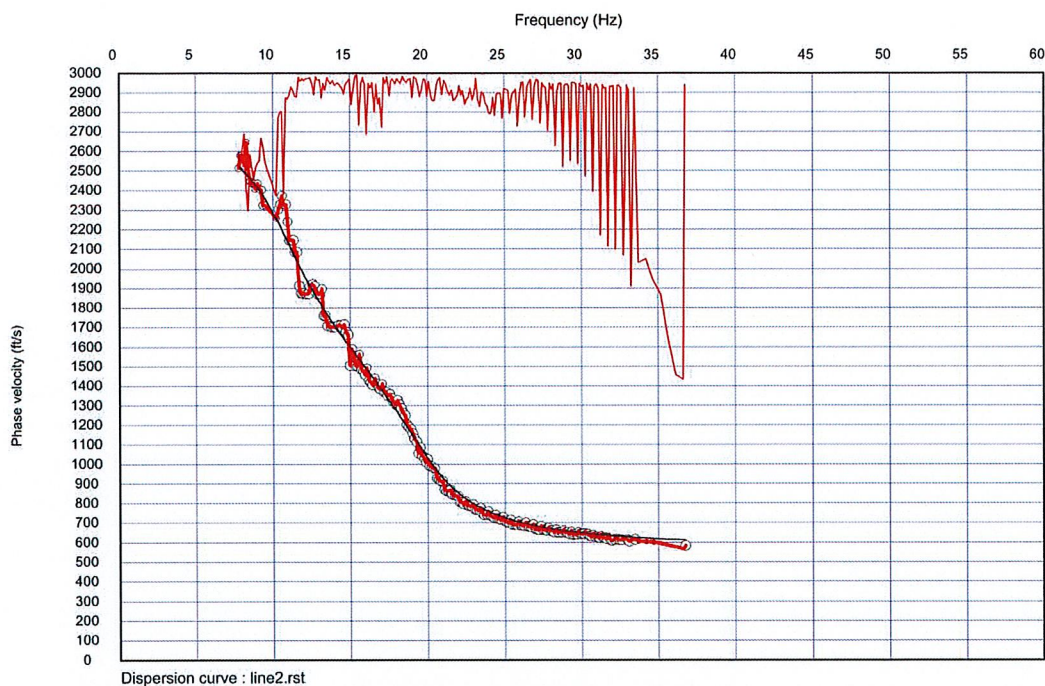


Figure 9a. Survey Line 2: Dispersion Curve

Site name : 1800 English Road Project

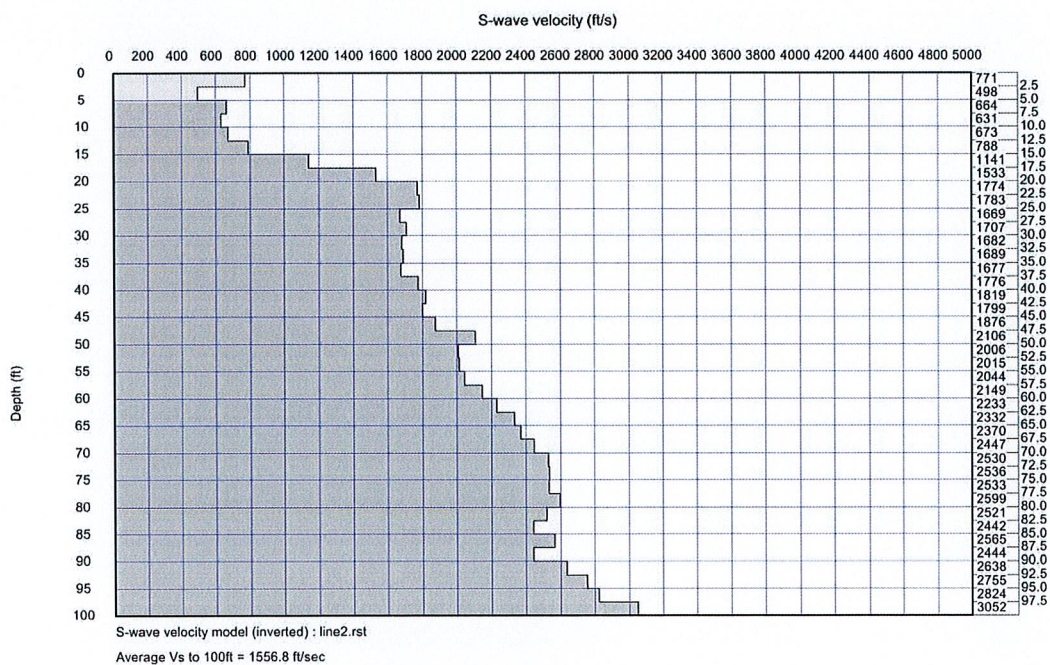


Figure 9b. Survey Line 2: 1D Vs Profile.

Please note, as explained in Report Section 2.4, dark grey shaded section of the above Vs Profile represents the best indicator of the reliable depth range of wave penetration for the model. The light grey shaded sections represent ranges of depth where results are generally less accurate and/or unreliable, and thus, caution shall be exercised when interpreting the survey results.

Site name : 1800 English Road Project

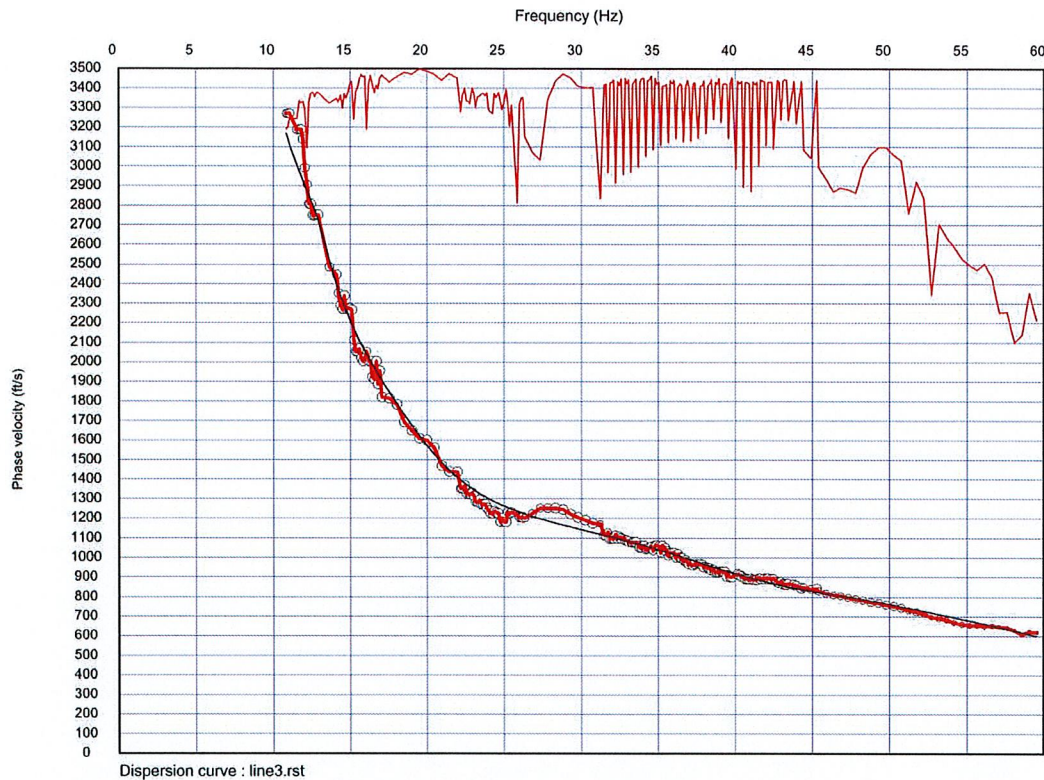


Figure 10a. Survey Line 3: Dispersion Curve

Site name : 1800 English Road Project

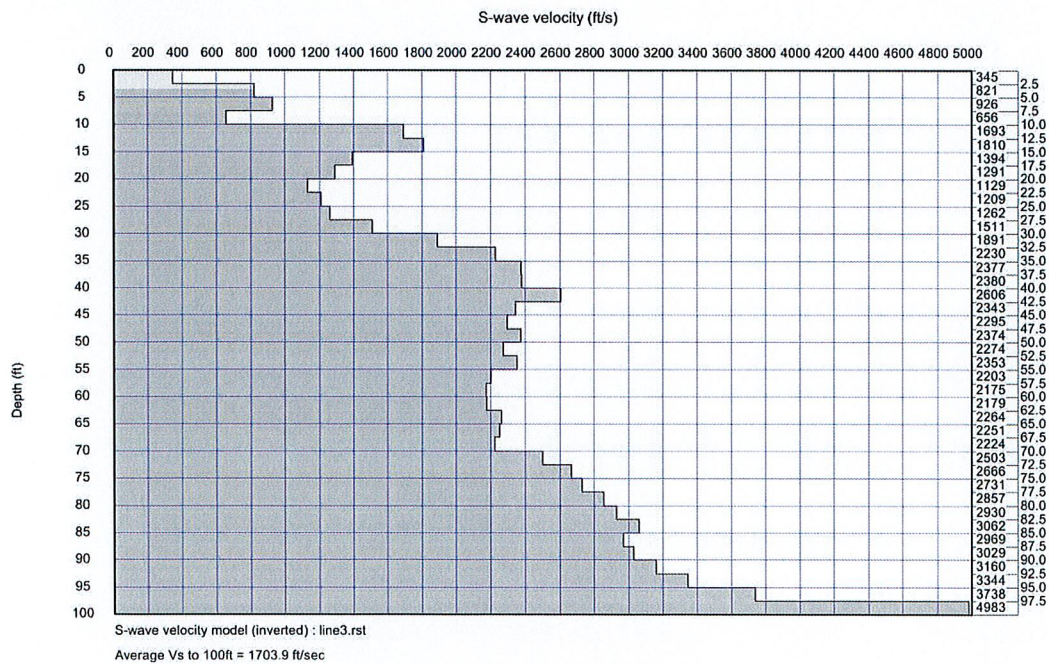


Figure 10b. Survey Line 3: 1D Vs Profile.

Please note, as explained in Report Section 2.4, dark grey shaded section of the above Vs Profile represents the best indicator of the reliable depth range of wave penetration for the model. The light grey shaded sections represent ranges of depth where results are generally less accurate and/or unreliable, and thus, caution shall be exercised when interpreting the survey results.

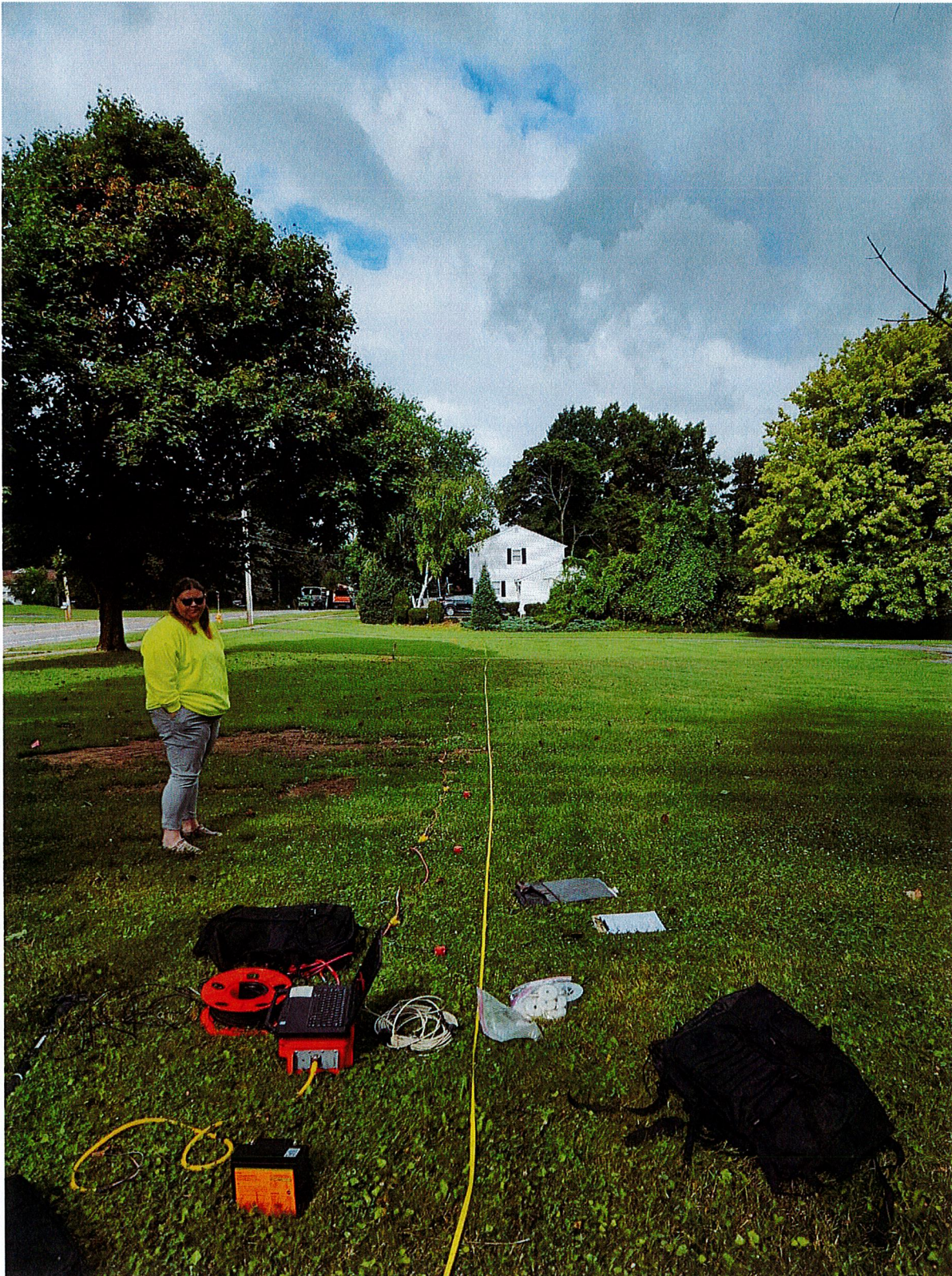


Figure 11: Site Location and Spread Configurations, Line 1



Figure 12: Site Location and Spread Configurations, Line 2



Figure 13: Site Location and Spread Configurations, Line 3

3.0 SITE CLASS

Based on the Shear Wave Velocity profiles reported in Section 2.5 of this report, Average Shear Wave Velocity, V_s , was calculated for each survey line, in accordance with Section 20.4.1 of ASCE 7.

According to Chapter 20 of ASCE 7, which is the governing document for Site Class determination per the 2020 Building Code of New York State, the required V_s for Site Class C is 1,200 ft/sec to 2,500 ft/sec. The overall average of the V_s values reported in Table 1 of Section 2.5 is 1,567 ft/sec, which is within the range for Site Class C.

CME recommends that the above results be reviewed by the project Geotechnical Engineer of Record to designate the Site Class for the project.

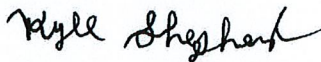
4.0 CLOSING COMMENTS

The interpretation presented in this report is based on observed geophysical responses obtained during the test procedure and data processing.

We have endeavored to conduct these services in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical engineering profession, practicing contemporaneously under similar conditions in the locality of the project. No other representation, express or implied, is made. Under no circumstances is any warranty, express or implied, made in connection with the providing of geotechnical engineering services.

If you have any questions regarding the information presented in this report, please contact our office.

Respectfully Submitted,
CME Associates, Inc.

A handwritten signature in black ink, appearing to read "Kyle Shepherd".

Kyle Shepherd, E.I.T.
Staff Geotechnical Engineer

Reviewed By,
CME Associates, Inc.

A handwritten signature in black ink, appearing to read "Anas N. Anasthas".

Anas N. Anasthas, P.E.
Senior Geotechnical Engineer

References:

- Park, C., Miller, R. and Xia, J., 1999. Multichannel Analysis of Surface waves. Available at:
< <ftp://geom.geometrics.com/pub/seismic/Literature/SurfaceWaves/KGS/S-TR284-G64n31999ParkMASW.pdf> >
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- Park, C. and Miller, R., 2004. MASW to Map Shear-Wave Velocity of Soil. Available at:
< http://www.kgs.ku.edu/Geophysics/OFR/2004/OFR04_30/ofr04_30_text.pdf >
[Accessed 30 September 2018].
- Park, C., Miller, R., Xia, J. and Ivanov, J., 2007. Multichannel Analysis of Surface Waves (MASW) – Active and Passive Methods. Available at:
< ftp://geom.geometrics.com/pub/seismic/Literature/SurfaceWaves/KGS/TLE26n12007_Park-Miller-Xia-Ivanov.pdf >
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< <ftp://geom.geometrics.com/pub/seismic/Literature/SurfaceWaves/KGS/S-TR283-G64n31999XiaMASW.pdf> >
[Accessed 25 September 2018].
- Xia, J., Miller, R., Park, C. and Ivanov, J., 2004. Utilization of High Frequency Rayleigh Waves in Near-Surface Geophysics. Available at:
< ftp://geom.geometrics.com/pub/seismic/Literature/SurfaceWaves/KGS/TLE23n82004_Xia-Miller-Park-Ivanov.pdf >
[Accessed 27 September 2018].

SECTION 00 31 13 - PRELIMINARY SCHEDULE

PROJECT SCHEDULE

1.01 PROJECT SCHEDULE

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but do not affect Contract Time requirements. This Document and its attachments are not part of the Contract Documents.
- B. Project schedule including design and construction milestones and Owner's occupancy requirements is available for viewing on Project Web site and summarized below.

Schedule of Milestone Dates

Construction Activity	Start Date – End Date
Pre-Bid Meeting	November 7, 2024
Bid Opening	November 21, 2024
Contracting Requirements	November 22, 2024 – December 6, 2024
Contract A – SITE WORK	December 2024 - March 2026
Future Contracts	January 2024 - March 2026

- C. Related Requirements:
1. Document 00 41 13 "Bid Form - Stipulated Sum" for Contract Time.
 2. Section 01 10 00 - Summary for construction requirements.
 3. Section 01 30 00 - Administrative Requirements for Contractor's construction schedule requirements.

END OF DOCUMENT 00 31 13

SECTION 00 41 13.01 - BID FORM - STIPULATED SUM (CONTRACT A)

PART 1 - GENERAL

1.01 GENERAL

- A. Pursuant to, and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to the CONTRACT A – SITEWORK work as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled **NGFD ENGLISH ROAD STATION** all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

BASE BID:

Total: (\$ _____)

_____ Dollars

1.02 BID SECURITY

- A. Attached hereto is a Bid Bond in the amount of five percent (5%) of the Base Bid.

1.03 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
1. The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
- B. The person signing this bid or proposal certifies that he/she has fully informed himself/herself regarding the accuracy of the statements contained in this certification,

and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as the person signing on it's behalf;

1. That attached hereto (if a corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signature of this bid or proposal on behalf of the corporate bidder.

Resolved that _____
be authorized to sign and submit the bid or proposal of this corporation for the **NGFD ENGLISH ROAD STATION, - CONTRACT A – SITEWORK** and to include in such bid or proposal the certificate as to non-collusion required by Section One hundred Three (d) (103d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalties of perjury.

1.04 ACCEPTANCE

- A. When this proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.05 AFFIRMS

- A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.06 TYPE OF BUSINESS

- A. The undersigned hereby represents that it is a _____ (Corporation, Partnership or Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.07 PLACE OF BUSINESS

- A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed or delivered.

Name of Contact Person: _____

Name of Business/Firm: _____

Address: _____

Telephone: _____

Fax: _____

1.08 EXECUTION OF CONTRACT

- A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within sixty (60) days after the opening of Bids, or anytime thereafter should the proposal not be withdrawn, the undersigned, within ten (10) consecutive calendar days, will execute the Form of Agreement with the Owner.

1.09 ALLOWANCE

- A. An allowance of \$350,000 is to be included in the total base bid, as specified in Section 01 21 00 - Allowances.
- B. An allowance of \$20,000 is to be included in the total base bid, as specified in Section 01 21 00 - Allowances.

1.10 ADDENDA

- A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #1: _____ Dated: _____

Addendum #2: _____ Dated: _____

Addendum #3: _____ Dated: _____

Addendum #4: _____ Dated: _____

1.11 AUTHORIZED SIGNATURES FOR PROPOSALS

Signature: _____

Name: _____

Title: _____

Firm: _____

Date: _____

END OF SECTION

DRAFT AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

<< >>< >>
<< >>

SURETY:

(Name, legal status and principal place of business)

<< >>< >>
<< >>

OWNER:

(Name, legal status and address)

<< >>< >>
<< >>

BOND AMOUNT: \$ << >>

PROJECT:

(Name, location or address, and Project number, if any)

<<>>

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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Signed and sealed this « » day of « », « »

(Witness)

(Witness)

« »

(Contractor as Principal)

(Seal)

« »

(Title)

« »

(Surety)

(Seal)

« »

(Title)



SECTION 00 43 21 - ALLOWANCES FORM

GENERAL

1.01 BID INFORMATION

- A. Bidder: _____
- B. Prime Contract: _____.

1.02 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.
- B. The undersigned Bidder certifies that Base Bid submission to which this Bid Supplement is attached includes those allowances described in the Contract Documents and scheduled in Section 01 21 00 "Allowances."

1.03 SUBMISSION OF BID SUPPLEMENT

RESPECTFULLY SUBMITTED THIS ____ DAY OF _____, 2024.

SUBMITTED BY:

(NAME OF BIDDING FIRM OR CORPORATION)

AUTHORIZED SIGNATURE:

(HANDWRITTEN SIGNATURE)

SIGNED BY:

(TYPE OR PRINT NAME)

TITLE:

(OWNER/PARTNER/PRESIDENT/VICE PRESIDENT)

END OF SECTION

DRAFT AIA® Document A132™ – 2019

Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month, and year.)

BETWEEN the Owner:
(Name, legal status, address, and other information)

« »
« »
« »
« »

and the Contractor:
(Name, legal status, address, and other information)

« »
« »
« »
« »

for the following Project:
(Name, location, and detailed description)

«

The Construction Manager:
(Name, legal status, address, and other information)

« »
« »
« »
« »

The Architect:
(Name, legal status, address, and other information)

« »
« »
« »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser. AIA Document A232™-2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	THE WORK OF THIS CONTRACT
3	DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION
4	CONTRACT SUM
5	PAYMENTS
6	DISPUTE RESOLUTION
7	TERMINATION OR SUSPENSION
8	MISCELLANEOUS PROVISIONS
9	ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

EXHIBIT B DETERMINATION OF THE COST OF THE WORK

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be:

(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of all of the Contractors for the Project are to be completed prior to Substantial Completion of the entire Work of all of the Contractors for the Project, the Contractors shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:

(Check one of the following boxes and complete the necessary information.)

☐ Not later than () calendar days from the date of commencement of the Work.

☐ By the following date:

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

Portion of Work	Date to be substantially complete

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

☐ Stipulated Sum, in accordance with Section 4.2 below

☐ Cost of the Work plus the Contractor's Fee, in accordance with Section 4.3 below

☐ Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2.2 Alternates

§ 4.2.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.2.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.2.4 Unit prices, if any:
(Identify the item and state the unit price, and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.3 Cost of the Work Plus Contractor's Fee without a Guaranteed Maximum Price

§ 4.3.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rental rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager, within 14 days of executing this Agreement, a written Control Estimate for the Owner's review and approval. The Control Estimate shall include the items in Section B.1 of Exhibit B, Determination of the Cost of the Work.

§ 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price

§ 4.4.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

<< >>

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed << >> percent (<< >> %) of the standard rental rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.4.7 Guaranteed Maximum Price

§ 4.4.7.1 The Contract Sum is guaranteed by the Contractor not to exceed << >> (\$ << >>), subject to additions and deductions by Change Order as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

§ 4.4.7.2 Alternates

§ 4.4.7.2.1 Alternates, if any, included in the Guaranteed Maximum Price:

Item	Price

§ 4.4.7.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.4.7.3 Allowances, if any, included in the Guaranteed Maximum Price:

(Identify each allowance.)

Item	Price

§ 4.4.7.4 Assumptions, if any, upon which the Guaranteed Maximum Price is based:

(Identify each assumption.)

<< >>

§ 4.4.8 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes, or equipment, all of which, if required, shall be incorporated by Change Order.

§ 4.4.9 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 4.4.7.4. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 4.4.7.4 and the revised Contract Documents.

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)

<< >>

§ 4.6 Other:

(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)

<< >>

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and Certificates for Payment issued by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

<< >>

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the <> day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the <> day of the <> month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner not later than <> (<>) days after the Construction Manager receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.4.3.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.4.3.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.5 Progress Payments Where the Contract Sum is Based on the Cost of the Work without a Guaranteed Maximum Price

§ 5.1.5.1 With each Application for Payment, the Contractor shall submit the cost control information required in Exhibit B, Determination of the Cost of the Work, along with payrolls, petty cash accounts, receipted invoices, or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor, plus payrolls for the period covered by the present Application for Payment, less that portion of the payments attributable to the Contractor's Fee.

§ 5.1.5.2 Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

§ 5.1.5.3 In accordance with AIA Document A232-2019 and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.5.3.1 The amount of each progress payment shall first include:

- .1 The Cost of the Work as described in Exhibit B, Determination of the Cost of the Work;
- .2 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and
- .3 The Contractor's Fee computed upon the Cost of the Work described in the preceding Section 5.1.5.3.1.1 at the rate stated in Section 4.3.2; or if the Contractor's Fee is stated as a fixed sum in Section 4.3.2 an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work included in Section 5.1.5.3.1.1 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 5.1.5.3.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232-2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232-2019;
- .5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.5.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .6 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.5.4 The Owner, Construction Manager and Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.5.5 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor, and such action shall not be deemed to be a representation that (1) the Construction Manager and Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Article 5 or other supporting data; (2) that the Construction Manager and Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager and Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.5.6 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.5.7 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.6 Progress Payments Where the Contract Sum is Based on the Cost of the Work with a Guaranteed Maximum Price

§ 5.1.6.1 With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 5.1.6.2 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Guaranteed Maximum Price among: (1) the various portions of the Work; (2) any contingency for costs that are included in the Guaranteed Maximum Price but not otherwise allocated to another line item or included in a Change Order; and (3) the Contractor's Fee.

§ 5.1.6.2.1 The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.6.2.2 The allocation of the Guaranteed Maximum Price under this Section 5.1.6.2 shall not constitute a separate guaranteed maximum price for the Cost of the Work of each individual line item in the schedule of values.

§ 5.1.6.2.3 When the Contractor allocates costs from a contingency to another line item in the schedule of values, the Contractor shall submit supporting documentation to the Architect and Construction Manager.

§ 5.1.6.3 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work and for which the Contractor has made payment or intends to make payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

§ 5.1.6.4 In accordance with AIA Document A232-2019, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.4.1 The amount of each progress payment shall first include:

- .1 That portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the most recent schedule of values;
- .2 That portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction or, if approved in writing in advance by the Owner, suitably stored off the site at a location agreed upon in writing;
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and
- .4 The Contractor's Fee, computed upon the Cost of the Work described in the preceding Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 at the rate stated in Section 4.4.2 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work included in Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 5.1.6.4.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232-2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232-2019;
- .5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.6.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .6 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.6.5 The Owner and the Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.6.6 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and such action shall not be deemed to be a representation that (1) the Construction Manager or Architect have made a detailed examination, audit, or arithmetic verification of the documentation submitted in accordance with Section 5.1.6.1 or other supporting data; (2) that the Construction Manager or Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager or Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.6.7 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.6.8 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, when the Work of this Contract is substantially complete, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted when the Work of this Contract is substantially complete shall not include retainage as follows:

(Insert any other conditions for release of retainage when the Work of this Contract is substantially complete, or upon Substantial Completion of the Work of all Contractors on the Project or portions thereof.)

« »

§ 5.2 Final Payment

§ 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

§ 5.2.1.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

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§ 5.2.2 Final Payment Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 5.2.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit B, Determination of the Cost of the Work and a final Application for Payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect in accordance with Exhibit B, Determination of the Cost of the Work.

§ 5.2.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

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§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

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ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

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§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A232–2019, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

[☐] Arbitration pursuant to Article 15 of AIA Document A232–2019.

[☐] Litigation in a court of competent jurisdiction.

[« »] Other: (Specify)

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 7.1.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« »

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019.

§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 7.2.1 Termination

§ 7.2.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 7.2.1.2 Termination by the Owner for Cause

§ 7.2.1.2.1 If the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the Owner shall then only pay the Contractor an amount as follows:

- .1 Take the Cost of the Work incurred by the Contractor to the date of termination;
- .2 Add the Contractor's Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A232–2019.

§ 7.2.1.2.2 When the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, if the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the amount, if any, to be paid to the Contractor under Article 14 of AIA Document A232–2019 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.1.2.1.

§ 7.2.1.2.3 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1.2.1.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders. All Subcontracts, purchase orders and rental agreements entered into by the Contractor will contain provisions allowing for assignment to the Owner as described above.

§ 7.2.1.3 Termination by the Owner for Convenience

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

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§ 7.3 Suspension

The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019; in such case, the Contract Sum and Contract Time shall be increased as provided in Article 14 of AIA Document A232–2019, except that the term “profit” shall be understood to mean the Contractor’s Fee as described in Section 4.3.2 or 4.4.2, as applicable, of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

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§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

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§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A132™–2019, Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A232–2019, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

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§ 8.7 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor’s Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with

the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

§ 8.8 Other provisions:

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ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition
- .2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit
- .3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

- .5 Drawings

Number	Title	Date

- .6 Specifications

Section	Title	Date	Pages

- .7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[☐] AIA Document A132™–2019, Exhibit B, Determination of the Cost of the Work

[☐] AIA Document E235™–2019, Sustainable Projects Exhibit, Construction Manager as Adviser Edition, dated as indicated below:
(Insert the date of the E235-2019 incorporated into this Agreement.)

« »

[☐] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

This Agreement is entered into as of the day and year first written above.

OWNER (Signature)

« »« »

(Printed name and title)

CONTRACTOR (Signature)

« »« »

(Printed name and title)

DRAFT AIA® Document A232™ – 2019

General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:

(Name, and location or address)

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THE CONSTRUCTION MANAGER:

(Name, legal status, and address)

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THE OWNER:

(Name, legal status, and address)

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THE ARCHITECT:

(Name, legal status, and address)

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™-2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.3 The Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner's own forces and Separate Contractors.

§ 1.1.5 Contractors. Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

§ 1.1.6 Separate Contractors. Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

§ 1.1.7 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.8 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.9 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.10 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™-2013, Building

Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work, and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 2.3.5 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.6 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.7 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing,

constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data, and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive

action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall

not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

§ 4.1.3 Duties, responsibilities, and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Construction Manager, Architect, and Contractor. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager known deviations from the Contract Documents and defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications. The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project.

Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.11 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and

make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.19 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.20 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of

the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such

materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.2.1 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate

agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, Construction Manager and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner

and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Construction Manager and Construction Manager's consultants, and the Architect and Architect's consultants, shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform both the Contractor and the Construction Manager, separately and in writing, prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice directly to the Contractor, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor, Architect, and Construction Manager for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within

a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, Separate Contractors, or other Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public

authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 **Claims for Additional Cost.** If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial

decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

CERTIFICATE OF LIABILITY INSURANCE

Date (MM/DD/YY)

PRODUCER: <div style="text-align: center;">Insurance Agency Name and Address</div>	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
INSURED: <div style="text-align: center;">Subcontractor Name and Address</div>	<div style="text-align: center;">COMPANIES AFFORDING COVERAGE</div> <div style="text-align: center;"> COMPANY A COMPANY B SAMPLE CERTIFICATE COMPANY C COMPANY D </div>

COVERAGES **Certificate supercedes and replaces any previously issued certificate**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY COMMERCIAL GENERAL LIABILITY CLAIMS MADE <input checked="" type="checkbox"/> OCCURRENCE <input checked="" type="checkbox"/> General Aggregate Limit Applies Per Project	ABC123	MM/DD/YY	MM/DD/YY	GENERAL AGGREGATE \$ 2,000,000
					PRODUCTS - COMP/OP AGG \$ 2,000,000
					PERSONAL & ADV INJURY \$ 1,000,000
					EACH OCCURRENCE \$ 1,000,000
					FIRE DAMAGE (Any one fire) \$ 50,000
					MED EXP (Any one person) \$ 5,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	ABC123	MM/DD/YY	MM/DD/YY	COMBINED SINGLE LIMIT \$ 1,000,000
					BODILY INJURY (Per person) \$
					BODILY INJURY (Per accident) \$
					PROPERTY DAMAGE \$
					AUTO ONLY - EA ACCIDENT \$
					AGGREGATE \$
B	EXCESS LIABILITY <input checked="" type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM <input checked="" type="checkbox"/> OCCURRENCE FORM <input type="checkbox"/> CLAIMS MADE	ABC123	MM/DD/YY	MM/DD/YY	EACH OCCURRENCE \$ 5,000,000
					AGGREGATE \$ 5,000,000
					RETENTION \$ 10,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY THE PROPRIETOR/PARTNERS/EXECUTIVES & OFFICERS ARE <input checked="" type="checkbox"/> INCL <input type="checkbox"/> EXCL	ABC123	MM/DD/YY	MM/DD/YY	<input checked="" type="checkbox"/> WC STATUTORY LIMITS
					EL EACH ACCIDENT \$ 100,000
					EL DISEASE - POLICY LIMIT \$ 500,000
					EL DISEASE - EA EMPLOYEE \$ 100,000
	OTHER:				

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

RE: NGFD English Road Station

North Greece Fire District (Owner), Christa Construction, LLC (Construction Manager), Passero Associates, (Architect), and all other parties as required by contract are named as additional insured on a primary and non-contributing basis. A 30 day written notice of cancellation applies. A waiver of subrogation applies. (Please attach a copy of Additional Insured Form/Endorsement).

Certificate Holder:

North Greece Fire District
1766 Latta Road
Greece NY, 14612

Should any of the above described policies be cancelled before the expiration date thereof, the insurance company will endeavor to mail 30 days written notice to the certificate holder named to the left. But failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

AUTHORIZED REPRESENTATIVE

SAMPLE GC/ CMC /D/B

SECTION 00 73 43 - WAGE RATE REQUIREMENTS

1.01 WAGE RATE REQUIREMENTS

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They are made available for Bidders' convenience and information.
- B. The prevailing wage schedule is available for viewing on Project Website or may be obtained by accessing the Department of Labor's website and entering PRC# 2024013572.

END OF DOCUMENT 00 73 43

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SECTION 01 10 00 - SUMMARY

PART 1 GENERAL

1.01 PROJECT INFORMATION

- A. Project Identification: NGFD English Road Station - Sitework .
 - 1. Project Location: 1816 English Road, Rochester, NY 14612.
- B. Owner: North Greece Fire District, 1766 Latta Road, Rochester, New York 14612.
- C. Architect, Structural Engineer, and Civil Engineer:
Passero Associates, 242 W. Main Street, Suite 100, Rochester, NY 14614.
 - 1. Architect's Representative: Timothy Geier, AIA, tgeier@passero.com.
 - 2. Structural Engineer's Representative: Robert Asselin, PE, LEED AP BD + C, rasselin@passero.com.
 - 2. Civil Engineer Representative: Andrew Burns, P.E., aburns@passero.com.
- D. Architects Project Number: 20233530.0001.
- E. Construction Manager:
Christa Construction, 64 Commercial Street, Suite 401, Rochester, NY 14614.
 - 1. Construction Manger's Representatives: John Radesi, jradesi@christa.com; Michael Tubbs, mtubbs@christa.com; and Jason Kuberka, jkuberka@christa.com.
- F. Web-Based Project Software: Project software administered by Architect will be used for purposes of managing communication and documents during the construction stage.
- G. The Work of the Project is defined by the Contract Documents and consists of the following:
 - 1. **Contract A - Sitework:** will include site preparation; including grubbing, removal of topsoil; and erection of temporary fencing; selective demolition, site grading; site utilities including sanitary, storm and water service; erosion control and final restoration surfaces including curbing, paving, sidewalk and seeding.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: Multiple prime contracts, each based on a Stipulated Price.
- B. Multiple contracts are separate contracts, representing significant construction activities, between Owner and separate contractors. Description of work included under each separate contract is included herein. Each contract is performed concurrently and coordinated closely with construction activities performed on the Project under other contracts. Contracts for this Project include the following:
 - 1. Contract A - Sitework
- C. The work of each separate prime contract is identified in this section.

1.03 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to use of Project Site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this section.
- B. Limits:
 - 1. Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet beyond building perimeter; 10 feet beyond surface walkways, patios, surface parking, and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.
- C. Arrange use of site and premises to allow:
 - 1. Work by Others.
 - 2. Work by Owner.
 - 3. Use of site and premises by the public.
- D. Provide access to and from site as required by law and by Owner:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- E. Time Restrictions:
 - 1. On-Site Work Hours: Limit work to normal business working hours of 7:00 a.m. to 3:30 p.m., Monday through Friday, unless otherwise indicated..
 - 2. Off hours work as approved by Construction Manager.
- F. Utility Outages and Shutdown:
 - 1. Limit disruption of utility services to hours the site is unoccupied.
 - a. Notify Construction Manager not less than two days in advance of proposed utility interruptions.
 - b. Obtain Construction Manager's written permission before proceeding with utility interruptions.
 - 2. Prevent accidental disruption of utility services to other facilities.
- G. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Construction Manager.
 - 1. Notify Construction Manager not less than two days in advance of proposed disruptive operations.
 - 2. Obtain Construction Manger's written permission before proceeding with disruptive operations.
- H. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.04 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Construction Manager.

1.05 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.06 GENERAL REQUIREMENTS OF CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.
 - 1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
 - 2. All Prime Contractors should note that the project is applicable to all prevailing wage rates as determined by the wage rate schedule within these contract documents. Contractors will be required to submit certified payroll reports with their payment applications prior to processing and release of payments.
 - 3. Trenches and other excavation for the work of each contract shall be the work of each Contract for its own work.
 - 4. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each Contract for its own work.
 - 5. Equipment pads for the work of each contract shall be the work of each Contract for its own work.
 - 6. Cutting and Patching: Provided under each Contract for its own work, all patching work is to match existing materials in kind.
 - 7. Contractors' Startup Construction Schedule: Within five (5) working days after startup horizontal bar-chart-type construction schedule submittal has been received from CM, submit a matching startup horizontal bar-chart schedule showing construction operations sequenced and coordinated with overall construction.

8. All prime contractors are to review the drawings and specifications in their entirety. Where information conflicts occur or where multiple options are presented, the contractor is to have included the cost for the more expensive option.
 9. All prime contractors are responsible for any and all enclosures, partitions, temporary shoring, bracing, supports, or protection systems necessary to complete their own work.
 10. All prime contractors are required to implement and maintain a project specific safety program. Prime contractors shall submit their safety program within (5) business days of contract award notification to the Construction Manager. The program shall include company safety philosophy, history, action plans, emergency contact list, hazardous communications sheets, OSHA filings, maintained weekly safety meeting minutes and reporting system for any accidents or injuries.
 11. All prime contractors are required to submit a project specific Silica compliance program plan within (5) business days of contract award notification to the Construction Manager. The program must include safety equipment and procedures specific to completion of work of each contract.
 12. Each Prime Contractor and their applicable Subcontractors (If Any) are responsible to provide adequate, skilled manpower; and appropriate supervision throughout the course of the project as necessary to maintain the overall construction schedule and milestone dates.
 13. Local custom and trade-union jurisdictional settlements do not control the Scope of Work included in each Prime Contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, the affected Prime Contractors shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and delays.
 14. All Federal, State, County and Local laws, codes, standards, rules and regulations including but not limited to zoning, planning, fire, health, tax, insurance, safety, OSHA, criminal, building code, plumbing code, HVAC code, Electrical code, traffic, labor, transportation, environmental, and education shall be adhered to.
 15. Prime Contractors are responsible for full time on site supervision of both prime contractors work as well as sub-contractors work being performed. It is the responsibility of Prime Contractors to undertake this superintendent type role for each respective Prime Contract. Superintendent interviews may be requested. prior to project start at the discretion of the Architect and Construction Manager.
 16. Subcontractors of Prime Contractors with a total contract value in excess of \$1,500,000.00 or as deemed necessary by the Construction Manager will be required to participate in weekly foreman's and project manager meetings as a Prime Contractor to ensure smooth workflow.
 17. All Prime Contractors will be responsible to maintain a master set of red line drawings. This master set will be kept in the CM's field office. As a condition of payment, each contractor will have a representative update the drawings with any and all changes made during the month including posting change order work, field directives, sketches issued, requests for information (RFI) answers, and so on.
- C. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.
- D. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Division 01 Section "Temporary

Facilities and Controls," and in Division 01 Section "Temporary Utilities", each contractor is responsible for the following:

1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 3. Its own field office complete with necessary furniture, utilities, and telephone service at discretionary approval by Construction Manager.
 4. Its own storage and fabrication sheds, in a location designated by the Owner/Construction Manager.
 5. Temporary enclosures for its own construction activities.
 6. Staging and scaffolding for its own construction activities.
 7. General hoisting requirements for its own construction activities, up to and in excess of 2 tons.
 8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials is the responsibility of Contract A – Site Work
 9. Progress cleaning of work areas affected by its operations on a daily basis, and as necessary, at the CM's discretion. Back charges will be assessed to those Prime Contractors who fail to comply with progress cleaning requirements. It is the responsibility of Prime Contractors to enforce these requirements with their subcontractors.
 10. Secure lockup of its own tools, materials, and equipment.
 11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
 12. Dewatering necessary to lower and control groundwater levels and hydrostatic pressure to permit excavation and construction to be performed properly under dry conditions for the work of each contract shall be the work of each Contract for its own work.
- E. Temporary Heating, Cooling, and Ventilation: Each Contract for its own work is responsible for temporary heating, cooling, and ventilation as required for all work associated with its respective contract.
- F. Use Charges: Comply with the following:
1. Sewer Service: The cost for sewer service use by all parties engaged in construction activities at Project site is to be provided by the Owner.
 2. Water Service: The cost for water service, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site is to be provided by the Owner.
 3. Electric Power Service: The cost for electric power service, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site is to be provided by the Owner.

1.07 SPECIFICATION SECTIONS APPLICABLE TO ALL CONTRACTS

- A. Unless otherwise noted, all provisions of the sections listed below apply to all contracts. Specific items of work listed under individual contract descriptions constitute exceptions.
- B. Division 00 - Procurement and Contracting Requirements: All.

C. Division 01 - General Requirements: All.

1.08 CONTRACT NO. A - SITEWORK

- A. Specification sections listed above as applicable to all contracts.
- B. Provide all Work except Work specifically assigned to other contractors in this Section.
- C. Work in the Sitework Contract includes, but is not limited to, the following:
 - 1. Contract A - Sitework shall provide labor, material, plant, tools, equipment, administration, management, supervision and trades related to and/or necessarily involved with the performance of the Work, as indicated on all the Drawings, Specifications and/or Project Manual, and as set forth below. Work for Contract A is generally described as Sitework, but more specifically described in this Scope of Work.
 - 2. Drawings and General Provisions of the Contract, including General and Supplementary General Conditions and other Division 0 & 1 Specification Sections, apply to this Section.
 - 3. Division 02 - Existing Conditions
 - a. Demolition
 - 4. Division 31 - Earthwork
 - a. Earth Moving
 - b. Excavation
 - c. Fill
 - d. Erosion, Sediment, and Pollution Control
 - 5. Division 32 - Exterior Improvements
 - a. Concrete Site Work
 - b. Asphalt Paving
 - c. Turf and Grasses
 - 6. Division 33 - Utilities
 - a. Water Distribution
 - b. Disinfecting of Water Utility Distribution
 - c. Sanitary Sewer
 - d. Storm Drainage
 - 7. Contract Drawings:
 - a. Drawing Sheet C 101 Cover
 - b. Drawing Sheet C 102 Site Plan
 - c. Drawing Sheet C 103 Existing Conditions / Demolition Plan
 - d. Drawing Sheet C 104 Utility Plan
 - e. Drawing Sheet C 105 Grading and Erosion Control Plan
 - f. Drawing Sheet C 106 Landscaping
 - g. Drawing Sheet C 201 Notes
 - h. Drawing Sheet C 202 Details
 - i. Drawing Sheet C 203 Details
 - j. Drawing Sheet C 204 Details
 - k. Drawing Sheet C 205 Details
 - l. All contract drawings as listed in Specification Section 00 01 15 List of Drawing Sheets.
 - 8. Other Documents List:
 - a. Geotechnical Report
 - b. Preliminary Project Milestone Schedule.

9. Other Work of this Contract:
 - a. As per all Federal, State, County & Local Code Requirements. Provide all required Permits, Licenses & associated Fees.
10. Contractor must comply with all applicable OSHA standards.
11. Perform a Field Survey to verify all Existing Conditions prior to Submitting a Bid.
12. Contractor is responsible for submitting to the Construction Manager, for their approval, a proposed schedule of all utility shutdowns and cutovers of all types which will be required to complete the Project; said schedule should contain a minimum of (2) weeks advance notice prior to the time of the proposed shut down and cutover. Any shutdowns and cutovers, depending on their type, generally must be scheduled on weekends, at night, or during holiday periods. The Contract consideration is deemed to include all necessary overtime and all premium time, if any, that is required by the contractor to complete the shutdowns or cutovers.
13. Survey and Layout Data, the Owner will provide the Contractor with the minimum necessary Horizontal & Vertical Control in order to perform their required Construction Layout.
14. Construction Layout, Contract A - Sitework, shall be responsible for all Construction Layout & Stakeout to be performed by a NYS Licensed Professional Surveyor as required for the performance of their own Work.
15. Construction Waste Management and Disposal, includes Dumpsters, Hauling, and Legal Disposal of all C&D Waste generated by itself for the duration of the project, is the responsibility of Contract A - Sitework.
16. Coordination and associated drawings for Contract A - Sitework interfaced with all other MEP and Prime Contractors Work.
17. Contractor is responsible for final survey of field layout required to complete their work in accordance with the Contract Documents and Specifications.
18. Temporary heating of work for Contract A - Site Work is the responsibility of the contractor to maintain proper product requirements and schedule.
19. Contractor is responsible for coordination with utility companies for any work on or around existing utility structures as noted on Contract Documents.
20. Perform hand, or machine Test Pits as required to located existing utilities prior to tie-ins as required for the performance of Contract A - Site Work.
21. Any Dewatering is to be included by this contractor, as required for the performance of Contract A - Site Work.
22. Cast-In-Place Concrete Foundations & Pads are to be provided, as required for the performance of Contract A - Site Work.
23. Site Utilities, all Utilities specified to be included within Contract A - Site Work scope of work are to be properly terminated including any necessary fittings required for final connection, within 5'-0" of the building footprint to be continued by the applicable Prime Contractor.
24. Dust control and cleaning of roadways at the completion of work day and as needed at CM discretion is the responsibility of Contract A - Site Work.
25. Earth moving at building footprint, +20' additional around the perimeter; preparation for the concrete slab on grade construction within the building footprint; strip topsoil, excavate, proof roll, geo grid where applicable, 3rd party geotechnical agency approval, undercutting existing subgrades if directed, install Geotextile Stabilization Fabric if applicable, and import #2 crusher run stone structural fill materials to raise the existing grades & install required subbase to an Elevation of (- 1') of Finish Floor Elevation for Slab on Grade Construction, as per

- the Contract Documents. Building pad work for Contract A - Site Work will consist of 24" of #2 crusher run stone upon completion and acceptance.
26. After Contract A - Site Work establishes the identified building pad elevations (-1' FFE), the responsibility for maintenance of material will be the responsibility of each Contractor for their own work. Any disturbance of approved subgrade will be the responsibility each Contract for its own work.
 27. Earth Moving, any Undercutting of existing subgrades directed by the 3rd Party Geotechnical Engineer and/or Testing Agency, but not indicated on the Contract Documents, shall be performed T&M basis for the appropriate material as outlined in the Contract Drawings, verified & signed written approval and acceptance by the CM's Site Representative at the end of each day will be required.
 28. Contract A - Site Work will be responsible for the provision and installation of a staging pad. Approximately 100' x 15' and 12 inches deep of #2 crusher run stone. Final placement by CM after contract award.
 29. Primary Utility Permits and Direct Fees for the work of Contract A - Site Work will be born by the Owner.
 30. All site electrical work will be the responsibility of future contracts. Contract A - Site Work is responsible for coordinating with all future contracts.
 31. Demolition of garage will be the responsibility of Contract A - Site Work.
 32. All landscaping work will be the responsibility of future contracts. Contract A - Site Work is responsible for coordinating with all future contracts
- D. Temporary facilities and controls in the Foundations Contract include the following, and Division 01 50 00 Section "Temporary Facilities and Controls":
1. Temporary Hoists, as required for the performance of Contract A-Sitework.
 2. Traffic Control, as required for the performance Contract A-Sitework.

PART 2 PRODUCTS - NOT USED**PART 3 EXECUTION - NOT USED****END OF SECTION**

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. Section 00 52 00 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.
- B. Section 01 21 00 - Allowances: Payment procedures relating to allowances.
- C. Section 01 22 00 - Unit Prices: Payment and modification procedures relating to unit prices.
- D. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 SCHEDULE OF VALUES

- A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.
- E. Include in each line item, the amount of Allowances specified in this section.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- D. Forms filled out by hand will not be accepted.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- H. Submit one electronic of each Application for Payment.
- I. Include the following with the application:
 - 1. Transmittal letter as specified for submittals in Section 01 30 00.
 - 2. Construction progress schedule, revised and current as specified in Section 01 30 00.
 - 3. Partial release of liens from major subcontractors and vendors.
 - 4. Photographs and receipts attesting to off-site stored products.
- J. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
 - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 - 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid.
Contractor shall prepare and submit a fixed price quotation within 5 days.
- D. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.
- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
 - 1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
 - 2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
 - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
 - 4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.
- F. Substantiation of Costs: Provide full information required for evaluation.
 - 1. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 - 1. All closeout procedures specified in Section 01 70 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 20 00

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SECTION 01 21 00 - ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.

1.02 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.03 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.04 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.05 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.06 CONTINGENCY ALLOWANCE

- A. Use the contingency allowance only as directed by Construction Manager or Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

- C. Funds will be drawn from the Contingency Allowance only by Change Order.
- D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.03 SCHEDULE OF ALLOWANCES

- A. Allowance No. A1: Contingency Allowance for Contract A – Site Work: Include the sum of \$350,000.
 - 1. This allowance includes material cost, receiving, handling, installation, and Contractor overhead and profit not to exceed 7.5%.
- B. Allowance No. B1: CM Field Office Trailer Allowance for Contract A – Site Work: Include the sum of \$20,000.
 - 1. This allowance includes material cost, receiving, handling, installation, and Contractor overhead and profit not to exceed 7.5%.

END OF SECTION

SECTION 01 21 00 - ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Lump-sum allowances.

1.02 LUMP-SUM ALLOWANCES

- A. Use the Lump-Sum allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. At project closeout, credit unused amounts remaining in the allowance to the Owner by Change Order.

1.03 ALLOWANCES SCHEDULE

- A. Allowance No. 1 (Lump-Sum Allowance): Include the sum of \$30,000.
 - 1. This allowance includes consumption costs for all temporary electric, water, and gas for the project during construction. All other costs are to be included in the contractors base bid. This includes but is not limited to, installation costs, materials, utility taps, etc. for temporary services.
- B. Allowance No. 2 (Lump-Sum Allowance): Include the sum of \$30,000.
 - 1. This allowance includes Electric and Gas Utility Connection Fees.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 21 00

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SECTION 01 22 00 - UNIT PRICES

PART 1 GENERAL

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 22 00

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SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedural requirements for proposed substitutions.

1.02 DEFINITIONS

- A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
 - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
 - a. Unavailability.
 - b. Regulatory changes.
 - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
 - a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.03 REFERENCE STANDARDS

- A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage); Current Edition.
- B. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase); Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
 - 1. Note explicitly any non-compliant characteristics.
- C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
 - 1. No specific form is required. Contractor's Substitution Request documentation must include the following:
 - a. Project Information:
 - 1) Official project name and number, and any additional required identifiers established in Contract Documents.
 - b. Substitution Request Information:
 - 1) Indication of whether the substitution is for cause or convenience.

- 2) Issue date.
- 3) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
- 4) Description of Substitution.
- 5) Reason why the specified item cannot be provided.
- 6) Differences between proposed substitution and specified item.
- 7) Description of how proposed substitution affects other parts of work.
- c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
 - 1) Physical characteristics.
 - 2) In-service performance.
 - 3) Expected durability.
 - 4) Visual effect.
 - 5) Warranties.
 - 6) Other salient features and requirements.
 - 7) Include, as appropriate or requested, the following types of documentation:
 - (a) Product Data:
 - (b) Samples.
 - (c) Certificates, test, reports or similar qualification data.
 - (d) Drawings, when required to show impact on adjacent construction elements.
- d. Impact of Substitution:
 - 1) Savings to Owner for accepting substitution.
 - 2) Change to Contract Time due to accepting substitution.
- D. Limit each request to a single proposed substitution item.
 1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

- A. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
- B. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
 1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
 3. Bear the costs engendered by proposed substitution of:
 - a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
 - b. Other unanticipated project considerations.

3.03 RESOLUTION

- A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- B. Architect will notify Contractor in writing of decision to accept or reject request.

3.04 ACCEPTANCE

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.05 CLOSEOUT ACTIVITIES

- A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

END OF SECTION 01 25 00

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SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Electronic document submittal service.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Coordination drawings.
- G. Submittals for review, information, and project closeout.
- H. Number of copies of submittals.
- I. Requests for Interpretation (RFI) procedures.
- J. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
- B. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 REFERENCE STANDARDS

- A. AIA G716 - Request for Information; 2004.
- B. AIA G810 - Transmittal Letter; 2001.
- C. CSI/CSC Form 12.1A - Submittal Transmittal; Current Edition.
- D. CSI/CSC Form 13.2A - Request for Interpretation; Current Edition.

1.04 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
- B. Make the following types of submittals to Architect:
 - 1. Requests for Interpretation (RFI).
 - 2. Requests for substitution.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.
 - 8. Progress schedules.
 - 9. Coordination drawings.
 - 10. Correction Punch List and Final Correction Punch List for Substantial Completion.
 - 11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
 - 1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
 - 2. Contractor and Architect are required to use this service.
 - 3. It is Contractor's responsibility to submit documents in allowable format.
 - 4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
 - 5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
 - 6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
 - 7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.
- B. Cost: The cost of the service will be paid by Owner.
- C. Submittal Service: The selected service is:
 - 1. Newforma Info Exchange.
- D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION MEETING

- A. Architect will schedule a meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.
 - 2. Architect.
 - 3. Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Submission of initial Submittal schedule.

6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
 1. Contractor.
 2. Owner.
 3. Architect.
 4. Special consultants.
 5. Contractor's superintendent.
 6. Major subcontractors.
- C. Agenda:
 1. Review minutes of previous meetings.
 2. Review of work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of RFIs log and status of responses.
 7. Review of off-site fabrication and delivery schedules.
 8. Maintenance of progress schedule.
 9. Corrective measures to regain projected schedules.
 10. Planned progress during succeeding work period.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to work.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.

3.05 COORDINATION DRAWINGS

- A. Review drawings prior to submission to Architect.

- B. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - 1) Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - 2) Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - 3) Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- C. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 2. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 3. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 4. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 5. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 6. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

7. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 1. File Submittal Format: Submit or post coordination drawing files using PDF format.
 2. At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to signed release by Contractor.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

3.06 REQUESTS FOR INTERPRETATION (RFI)

- A. Definition: A request seeking one of the following:
 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
 2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
 1. Prepare a separate RFI for each specific item.
 - a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
 - b. Do not forward requests which solely require internal coordination between subcontractors.
 2. Prepare in a format and with content acceptable to Owner.
 - a. Use AIA G716 - Request for Information .
 - b. Use CSI/CSC Form 13.2A - Request for Interpretation.
 3. Prepare using software provided by the Electronic Document Submittal Service.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
 1. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
 - a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.
- E. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

- F. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
 - 1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- G. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.

3.07 SUBMITTAL SCHEDULE

- A. Submit to Architect for review a schedule for submittals in tabular format.
 - 1. Coordinate with Contractor's construction schedule and schedule of values.
 - 2. Format schedule to allow tracking of status of submittals throughout duration of construction.
 - 3. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
 - 4. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
 - a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.08 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.09 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Sustainability design submittals and reports.
 - 3. Certificates.
 - 4. Test reports.
 - 5. Inspection reports.
 - 6. Manufacturer's instructions.
 - 7. Manufacturer's field reports.
 - 8. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

3.10 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.

- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

3.11 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
 - 1. After review, produce duplicates.
 - 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.12 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 - 2. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 - 3. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - 4. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 7 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
 - 5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 - 6. When revised for resubmission, identify all changes made since previous submission.
 - 7. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 - 8. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
 - 9. Submittals not requested will not be recognized or processed.
- B. Product Data Procedures:
 - 1. Submit only information required by individual specification sections.
 - 2. Collect required information into a single submittal.
 - 3. Submit concurrently with related shop drawing submittal.
 - 4. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
 2. Do not reproduce Contract Documents to create shop drawings.
 3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as single package.
 2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.13 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

3.14 SUBMITTAL REVIEW

- A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Architect will acknowledge receipt, but will take no other action.
- C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Architect's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
 - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
 - 1) Resubmit corrected item, with review notations acknowledged and incorporated. Resubmit separately, or as part of project record documents.
- E. Architect's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 2. Items for which action was taken:

- a. "Reviewed" - no further action is required from Contractor.

END OF SECTION 01 30 00

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SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. References and standards.
- C. Testing and inspection agencies and services.
- D. Contractor's construction-related professional design services.
- E. Contractor's design-related professional design services.
- F. Control of installation.
- G. Mock-ups.
- H. Tolerances.
- I. Manufacturers' field services.
- J. Defect Assessment.

1.02 DEFINITIONS

- A. Contractor's Quality Control Plan: Contractor's management plan for executing the Contract for Construction.
- B. Contractor's Professional Design Services: Design of some aspect or portion of the project by party other than the design professional of record. Provide these services as part of the Contract for Construction.
 - 1. Design Services Types Required:
 - a. Construction-Related: Services Contractor needs to provide in order to carry out the Contractor's sole responsibilities for construction means, methods, techniques, sequences, and procedures.
 - b. Design-Related: Design services explicitly required to be performed by another design professional due to highly-technical and/or specialized nature of a portion of the project. Services primarily involve engineering analysis, calculations, and design, and are not intended to alter the aesthetic aspects of the design.
- C. Design Data: Design-related, signed and sealed drawings, calculations, specifications, certifications, shop drawings and other submittals provided by Contractor, and prepared directly by, or under direct supervision of, appropriately licensed design professional.

1.03 CONTRACTOR'S CONSTRUCTION-RELATED PROFESSIONAL DESIGN SERVICES

- A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.
- B. Provide such engineering design services as may be necessary to plan and safely conduct certain construction operations, pertaining to, but not limited to the following:
 - 1. Temporary sheeting, shoring, or supports.
 - 2. Temporary scaffolding.
 - 3. Temporary bracing.
 - 4. Temporary foundation underpinning.
 - 5. Temporary stairs or steps required for construction access only.
 - 6. Temporary hoist(s) and rigging.
 - 7. Investigation of soil conditions to support construction equipment.

1.04 CONTRACTOR'S DESIGN-RELATED PROFESSIONAL DESIGN SERVICES

- A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.

- B. Base design on performance and/or design criteria indicated in individual specification sections.
- C. Scope of Contractor's Professional Design Services: Provide for the following items of work:
 - 1. Structural Design of Formwork: As described in Section 03 10 00 - Concrete Forming and Accessories.
 - 2. Structural Design of Steel Connections: As described in Section 05 12 00 - Structural Steel Framing.
 - 3. Structural Design of Steel Connections: As described in Section 05 21 00 - Steel Joist Framing.
 - 4. Structural Design of Metal Framing: As described in Section 05 40 00 - Cold-Formed Metal Framing.
 - 5. Structural Design of Metal Fabrications: As described in Section 05 50 00 - Metal Fabrications.
 - 6. Structural Design of Stairs: As described in Section 05 51 00 - Metal Stairs.
 - 7. Structural Design of Railings: As described in Section 05 52 13 - Pipe and Tube Railings.
 - 8. Structural Design of Wood Trusses: As described in Section 06 17 53 - Shop-Fabricated Wood Trusses

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

1.06 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.07 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirements. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.08 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.

- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.09 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

- A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.
- C. Notify Architect and Owner fifteen (15) working days in advance of dates and times when mock-ups will be constructed.
- D. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- E. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- F. Obtain Architect's approval of mock-ups before starting work, fabrication, or construction.
- G. Architect will use accepted mock-ups as a comparison standard for the remaining Work.

- H. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

3.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

- A. See statement of special inspections included on drawings for testing and inspection required.
- B. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- C. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.
- D. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.05 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION 01 40 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.
- H. Project identification sign.
- I. Field offices.

1.03 TEMPORARY UTILITIES - ALL CONTRACTS

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
- B. All temporary utility usage charges will be incurred by owner.
- C. See Section 01 51 00

1.04 TEMPORARY SANITARY FACILITIES - CONTRACT A

- A. Provide and maintain portable facilities and enclosures. Provide at time of project mobilization. Provide a minimum of 2 portable toilets and provide additional as required by project. Provide temporary toilets until April 1, 2025.

1.06 BARRIERS - CONTRACT A

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of

site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 FENCING – CONTRACT A

- A. Construction: Commercial grade chain link fence.
- B. Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.
- C. Fencing location to be coordinated with Construction Manager. Vehicle access gates to be post driven, and operable. Provide chain and combination lock on each gate.
- D. Quantity of fencing will be approximately 2500 Lineal Feet of portable fencing sections with feet and ballast, 3 Operable Post Driven swing gates with minimum clear opening of 20 feet. All fencing and gates to be placed at the discretion of the Construction Manager.
- E. Fencing to be maintained through project completion. Fencing to be adjusted or repaired to accommodate needs of the Owner and Project at the discretion of the Construction Manager.

1.08 SECURITY - ALL CONTRACTS

- A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

1.09 VEHICULAR ACCESS AND PARKING - ALL CONTRACTS

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
- B. Coordinate access and haul routes with governing authorities and Owner and Construction Manager.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.

1.10 WASTE REMOVAL - CONTRACT A, USE BY ALL CONTRACTS

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition for 5 (5) months from the time of mobilization.
 - 1. Provide minimum of (2) two container service to be used by all contractors. Size determined by contractor.

2. Provide (1) one 6yd or 8yd container service with lid to be placed next to field office and contractor parking area.
 3. Provide additional container services as project necessitates.
 4. Provide 50gal trash barrels inside building for use by all trades for trash and debris.
 5. Provide Rolling dump carts inside building for use by all trades for trash and debris.
 6. Provide dump box for use by all trades for trash and debris.
 7. CONTRACT A is responsible for emptying daily all trash barrels and dump boxes throughout project duration.
- C. Provide containers with lids. Remove trash from site periodically.
- D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.
- F. Containers provided are to be utilized by all contracts including Construction Manager, Architect, and Owner.

1.11 PROJECT IDENTIFICATION/SIGNAGE - CONTRACT A

- A. Provide (2) two "Project Site Entrance Signs" of roughly size 48"x96", design and construction indicated after contract award. Erect on site at location established by Architect or Construction Manager.
- B. Provide (4) four "Field Office Identification Signs" of minimum 48"x96", design to be provided after contract award. Erect on site at location established by Construction Manager.
- C. Temporary Signs: Provide and erect other signs as indicated and as required to inform public and individuals seeking entrance to Project. Minimum temporary signage as indicated below to be placed at direction of Construction Manager.
1. Provide temporary, directional signs for construction personnel and visitors at access road and or project entrance.
 - a. Pole Mounted "Construction Entrance Ahead" x4 minimum
 - b. Pole Mounted "Do Not Enter – Authorized Vehicles Only" x6 minimum
 2. Provide safety signage at every entrance gate both vehicular and pedestrian gate.
 - a. Provide "Hard Hats & Safety Glasses Required", "No Smoking", "Authorized Personnel Only" signage every 100' along temporary fencing.
 - b. Provide (8) eight), minimum size of 36"x48" Site Entrance Signs as directed by Construction Manger at main entrance gates of project access road. Design to be provided after contract award. Erect sign at main gate by direction of Construction Manager.
- D. Maintain and touch up signs so they are legible at all times.
- E. No other signs are allowed without Owner/Construction Manager permission except those required by law.

1.12 FIELD OFFICES - ALL CONTRACTS

- A. Field Offices: With approval by Construction Manager, each contractor may provide for its own use the following; Storage and Fabrication sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
- B. CONTRACT A - Construction Manager's Field Office: Contract A – Site Work is responsible to provide and install a 15' x 100' stone CR2 pad 12" thick for the field office to accommodate needs of Construction Manager. Location to be determined after contract award.
- C. CONTRACT A – Construction Managers Field Office. Contract A to be responsible for renting for project duration field office at CM discretion, details finalized after project award. Costs to be billed to Allowance A2.
- D. Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.13 EQUIPMENT - ALL CONTRACTS

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS - ALL CONTRACTS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet (600 mm). Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.02 INSTALLATION, GENERAL

- A. Locate facilities where they serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.03 SUPPORT FACILITIES INSTALLATION

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- C. Pest Control: Engage pest-control services to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

- E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

3.05 EROSION AND SEDIMENT CONTROL

- D. Provide erosion and sediment control as described in section 31 25 00 and as shown in the drawings.

END OF SECTION

SECTION 01 51 00 - TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: Provision of electricity, lighting, heat, ventilation, and water.

1.02 RELATED REQUIREMENTS

- A. Section 01 50 00 - Temporary Facilities and Controls:

1.03 USE CHARGES - ALL CONTRACTS

- A. General: Installation and removal of temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Usage Charges: All temporary utility usage charges will be incurred by owner.

1.04 QUALITY ASSURANCE – ALL CONTRACTS

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS – ALL CONTRACTS

- A. Temporary Use of Permanent Facilities: Engage installers of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.06 TEMPORARY ELECTRICITY

- A. Provide main service disconnect and over-current protection at convenient location and meter.
- B. Permanent convenience receptacles may be utilized during construction.
- C. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.07 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft (to achieve a minimum lighting level of 21 watt/sq m).
- B. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.
- C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- D. Maintain lighting and provide routine repairs.
- E. Permanent building lighting may be utilized during construction.

1.09 TEMPORARY WATER SERVICE

- A. Provide and maintain suitable quality water service for construction operations at time of project mobilization.

1.10 TEMPORARY FIRE PROTECTION

- A. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TEMPORARY UTILITY INSTALLATION - ALL CONTRACTS

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

- D. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
 - 1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- E. Electric Power Service: Provide electric power service and distribution of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service underground unless otherwise indicated.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Re-use of existing products.
- B. Transportation, handling, storage and protection.
- C. Substitution limitations.
- D. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 25 00 - Substitution Procedures: Substitutions made during and after the Bidding/Negotiation Phase.

1.03 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.04 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01 70 00 - Execution and Closeout Requirements.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

- B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Where products are accompanied by the term "as selected," Architect will make a selection.
 - 3. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 4. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. DO NOT USE products having any of the following characteristics:
 - 1. Made using or containing CFC's or HCFC's.
 - 2. Containing lead, cadmium, asbestos.

2.03 PRODUCT SELECTION PROCEDURES

- A. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.
- B. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
- C. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- D. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- E. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.04 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 - a. Evidence that proposed product provides specified warranty.
2. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

2.05 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. See Section 01 25 00 - Substitution Procedures.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Do not store products directly on the ground.

- I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- J. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- K. Prevent contact with material that may cause corrosion, discoloration, or staining.
- L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION 01 60 00

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 01 51 00 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.
- F. Section 01 74 19 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
- G. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
- H. Section 07 84 00 - Firestopping.
- I. Individual Product Specification Sections:
 - 1. Advance notification to other sections of openings required in work of those sections.
 - 2. Limitations on cutting structural members.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
 - 1. On request, submit documentation verifying accuracy of survey work.
 - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
 - 3. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.
 - 6. Include in request:

- a. Identification of Project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.
 - d. Description of proposed work and products to be used.
 - e. Effect on work of Owner or separate Contractor.
 - f. Written permission of affected separate Contractor.
 - g. Date and time work will be executed.
- D. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 5. Submit testing, adjusting, and balancing records.
- E. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- F. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

- A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

1.05 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

- E. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- F. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

2.02 CLEANING MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
- F. Utilize recognized engineering survey practices.
- G. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, ground floor elevations.
- I. Periodically verify layouts by same means.
- J. Maintain a complete and accurate log of control and survey work as it progresses.
- K. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.
- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
 - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
 - 2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- C. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
 - 3. Relocate items indicated on drawings.
 - 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 - 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 - 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 - 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

- a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
- b. Provide temporary connections as required to maintain existing systems in service.
- 4. Verify that abandoned services serve only abandoned facilities.
- 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- E. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
- F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
- G. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- H. Refinish existing surfaces as indicated:
 - 1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
 - 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- I. Clean existing systems and equipment.
- J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- K. Do not begin new construction in alterations areas before demolition is complete.
- L. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-complying work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

- F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

- A. See Section 01 79 00 - Demonstration and Training.
- B. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.12 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Testing, adjusting, and balancing HVAC systems: See Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC.

3.13 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

- i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- j. Remove labels that are not permanent.
- k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
- l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- m. Replace parts subject to unusual operating conditions.
- n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- p. Clean ducts, blowers, and coils if units were operated without filters during construction.
- q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- r. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.14 SUBSTANTIAL COMPLETION PROCEDURES

- A. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 6. Advise Owner of changeover in utility services.
 - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 9. Complete final cleaning requirements.
 - 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

3.15 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to Architect and Owner.
- B. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- E. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- F. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- G. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.16 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.17 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION 01 70 00

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SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
 - 1. Aluminum and plastic beverage containers.
 - 2. Corrugated cardboard.
 - 3. Wood pallets.
 - 4. Clean dimensional wood.
 - 5. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 - 6. Gypsum drywall and plaster.
- E. Contractor Reporting Responsibilities: Submit periodic Waste Disposal Reports; report landfill disposal, incineration, recycling, salvage, and reuse regardless of to whom the cost or savings accrues; use the same units of measure on required reports.
- F. Develop and follow a Waste Management Plan designed to implement these requirements.
- G. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons (tonnes).
 - 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 - 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

1.04 PERFORMANCE REQUIREMENTS

- A. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:
 - 1. Concrete
 - 2. Metals
 - 3. Wood-clean only-no paint or contaminates
 - 4. Porcelain
 - 5. Cardboard boxes & packaging
 - 6. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Conduct construction waste management activities in accordance with all other applicable laws and ordinances.
- B. Pre-construction Conference: Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.

2. Review requirements for documenting quantities of each type of materials that will be salvaged, recycled or disposed of as waste.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.06 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste types, quantity by weight, methods of disposal, handling and transportation procedures. Include separate sections in plan for demolition and construction waste.
 1. Organize the waste management plan in accordance with the sample plan included at end of Part 3, including the following information:
 - a. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.
 - b. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:
 - 1) Contracting with a de-construction specialist to salvage materials generated.
 - (a) Selective salvage as part of demolition contractor's work.
 - (b) Reuse of materials on-site or off-site sale or donation to a third party.
 - c. Proposed methods for salvage, reuse, recycling, and disposal during construction including, but not limited to, one or more of the following:
 - 1) Requiring subcontractors to take their CDL waste to a recycling facility.
 - 2) Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility.
 - 3) Processing and reusing material on-site.
 - 4) Self-hauling to a recycling or material recover facility.
 - d. Name of recycling or material recovery facility receiving each of the CDL wastes.
 - e. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

1.07 WASTE MANAGEMENT REPORT

- A. Waste Management Report: Submit a cumulative waste management report on the form included at end of Part 3 with the final Application for Payment with the following attachments:
 1. A record of the type and quantity, by weight, of each material salvaged, reused, recycled, or disposed.
 - a. Total quantity of waste recycled as a percentage of total waste.
 - b. Disposal Receipts: Copy of receipts issued by a disposal facility for CDL waste that is disposed in a landfill.
 - c. Recycling Receipts: Copy of receipts issued by approved recycling facilities for co-mingled materials. Include weight tickets from the recycling hauler or material recovery facility and verification of the recycling rate for co-mingled loads at the facility.
 - d. Salvaged Materials Documentation: Types and quantities, by weight, for materials salvaged for reuse on site, sold or donated to a third party.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION WASTE MANAGEMENT; GENERAL

- A. Provide container for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
- B. The collection containers for recyclable CDL waste must contain no more than 10% non-recyclable materials, by volume.
- C. Provide container for CDL waste that is disposed in a landfill clearly labeled as such.
- D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.
- E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.
- F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.02 SOURCE SEPARATION

- A. General: Separate recyclable materials from CDL waste to the maximum extent possible. Separate recyclable materials by type.
 - 1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from weather.

3.03 CO-MINGLED RECYCLING

- A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

3.04 REMOVAL OF CONSTRUCTION WASTE MATERIALS

- A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
- B. Transport CDL waste materials off Owner's property and legally dispose of them.
- C. Burning of CDL waste is not permitted.
- D. Suggested Recycling Company: Use Local Recycling Company
- E. Revenues: Revenues or other savings detained from recycled, reused, salvaged, or donated materials shall accrue to contractor unless otherwise noted in the contract documents.

END OF SECTION 01 74 19

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project record documents.
- B. Operation and maintenance data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
 - 1. Number of Copies:
 - a. Submit two (2) sets of marked-up Record Prints.
 - b. Submit two (2) copies of each Product Data submittal.
 - 1) Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Guarantees, Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
- D. Other Documents:
 - 1. Contractor's Affidavit of Payment of Debts and Claims - AIA G706.
 - 2. Contractor's Affidavit of Release of Liens - AIA G706A.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Record Drawings:
 - 1. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - a. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - 1) Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - 2) Accurately record information in an understandable drawing technique.
 - 3) Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - b. Content: Types of items requiring marking include, but are not limited to, the following:
 - 1) Dimensional changes to Drawings.
 - 2) Locations and depths of underground utilities.
 - 3) Revisions to routing of piping and conduits.
 - 4) Revisions to electrical circuitry.
 - 5) Actual equipment locations.
 - 6) Duct size and routing.
 - 7) Locations of concealed internal utilities.
 - 8) Changes made by Change Order or Construction Change Directive.
 - 9) Changes made following Architect's written orders.
 - 10) Field records for variable and concealed conditions.
 - 11) Record information on the Work that is shown only schematically.
 - c. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 - d. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - e. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - f. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
 - 2. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - a. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - b. Identification: As follows:
 - 1) Project name.
 - 2) Date.
 - 3) Designation "PROJECT RECORD DRAWINGS."
 - 4) Name of Architect.

- 5) Name of Contractor.
- B. Record Product Data:
 - 1. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - a. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - b. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - c. Note related Change Orders and Record Drawings where applicable.
- C. Miscellaneous Record Submittals:
 - 1. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- D. Recording and Maintenance:
 - 1. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
 - 2. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

3.02 MANUALS

- A. MANUAL PREPARATION
 - 1. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
 - 2. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - a. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
 - 3. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - 4. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.
- B. MANUALS, GENERAL
 - 1. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

- a. Title page.
 - b. Table of contents.
 - c. **Warranties**
2. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
- a. Subject matter included in manual.
 - b. Name and address of Project.
 - c. Name and address of Owner.
 - d. Date of submittal.
 - e. Name, address, and telephone number of Contractor.
 - f. Name and address of Architect.
 - g. Cross-reference to related systems in other operation and maintenance manuals.
3. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- a. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
4. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- a. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - 1) If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - (a) Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - b. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - c. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - d. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - e. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - 1) If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

- 2) If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

C. EMERGENCY MANUALS

1. Content: Organize manual into a separate section for each of the following:
 - a. Type of emergency.
 - b. Emergency instructions.
 - c. Emergency procedures.
2. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - a. Gas leak.
 - b. Water leak.
 - c. Power failure.
 - d. Water outage.
 - e. System, subsystem, or equipment failure.
3. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
4. Emergency Procedures: Include the following, as applicable:
 - a. Instructions on stopping.
 - b. Shutdown instructions for each type of emergency.
 - c. Operating instructions for conditions outside normal operating limits.

D. OPERATION MANUALS

1. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Operating procedures.
 - e. Operating logs.
 - f. Wiring diagrams.
 - g. Control diagrams.
 - h. Piped system diagrams.
 - i. Precautions against improper use.
 - j. License requirements including inspection and renewal dates.
2. Descriptions: Include the following:
 - a. Product name and model number.
 - b. Manufacturer's name.
 - c. Equipment identification with serial number of each component.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 - g. Complete nomenclature and number of replacement parts.
3. Operating Procedures: Include the following, as applicable:
 - a. Startup procedures.

- b. Routine and normal operating instructions.
- c. Regulation and control procedures.
- d. Instructions on stopping.
- e. Seasonal and weekend operating instructions.
- f. Required sequences for electric or electronic systems.
- 4. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- 5. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
- E. SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL
 - 1. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
 - 2. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
 - 3. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - a. Standard printed maintenance instructions and bulletins.
 - b. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - c. Identification and nomenclature of parts and components.
 - 4. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - a. Test and inspection instructions.
 - b. Troubleshooting guide.
 - c. Precautions against improper maintenance.
 - d. Aligning, adjusting, and checking instructions.
 - 5. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - a. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - b. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
 - 6. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
 - 7. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
 - 8. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - a. Include procedures to follow and required notifications for warranty claims.

3.03 GUARANTEES AND WARRANTIES (SIGNED BY COMPANY OFFICER AND NOTARIZED)

- A. Where a part or portion of the Work is performed by a subcontractor and a guarantee or warranty thereof is required, the Contractor shall secure such guarantee or warranty from the subcontractor performing such work on the subcontractor's letterhead signed by the subcontractor and counter-signed by the Contractor addressed to and in favor of the Owner alone.
- B. A separate but like guarantee or warranty addressed to and in favor of the Contractor alone shall be secured by Contractor from the subcontractor.
- C. Any guarantee or warranty from a manufacturer or other supplier shall be made likewise to run to and in favor of the Owner and separately to and in favor of the Contractor, the former, being counter-signed by the Contractor as in the case of subcontractors.
- D. All guarantees and warranties shall be delivered directly to the Owner as a condition of final payment.

END OF SECTION 01 78 00

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SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

- A. Demonstration of products and systems to be commissioned and where indicated in specific specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
 - 1. All software-operated systems.
 - 2. Plumbing equipment.
 - 3. Electrical systems and equipment.
 - 4. Landscape irrigation.
 - 5. Items specified in individual product Sections.
- C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
 - 1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
 - 2. Finishes, including flooring, wall finishes, ceiling finishes.
 - 3. Fixtures and fittings.
 - 4. Items specified in individual product Sections.

1.02 RELATED REQUIREMENTS

- A. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.
- B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures; except:
 - 1. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of overall Training Plan; submit in editable electronic format, Microsoft Word preferred.
- B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
 - 1. Submit not less than four weeks prior to start of training.
 - 2. Revise and resubmit until acceptable.
 - 3. Provide an overall schedule showing all training sessions.
 - 4. Include at least the following for each training session:
 - a. Identification, date, time, and duration.
 - b. Description of products and/or systems to be covered.
 - c. Name of firm and person conducting training; include qualifications.
 - d. Intended audience, such as job description.
 - e. Objectives of training and suggested methods of ensuring adequate training.
 - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
 - g. Media to be used, such as slides, hand-outs, etc.
 - h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.
- C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
 - 1. Include applicable portion of O&M manuals.
 - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.

3. Provide one extra copy of each training manual to be included with operation and maintenance data.
- D. Training Reports:
 1. Identification of each training session, date, time, and duration.
 2. Sign-in sheet showing names and job titles of attendees.
 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
 4. Include Commissioning Authority's formal acceptance of training session.
- E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.
 1. Format: DVD Disc.
 2. Label each disc and container with session identification and date.

1.04 QUALITY ASSURANCE

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
 1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
 2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.
- C. Demonstration may be combined with Owner personnel training if applicable.
- D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
 1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

- A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.
- B. Conduct training on-site unless otherwise indicated.
- C. Owner will provide classroom and seating at no cost to Contractor.
- D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.
- E. Provide training in minimum two hour segments.
- F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.

- G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.
- H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
 - 1. The location of the O&M manuals and procedures for use and preservation; backup copies.
 - 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
 - 3. Typical uses of the O&M manuals.
- I. Product- and System-Specific Training:
 - 1. Review the applicable O&M manuals.
 - 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
 - 3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
 - 4. Provide hands-on training on all operational modes possible and preventive maintenance.
 - 5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
 - 6. Discuss common troubleshooting problems and solutions.
 - 7. Discuss any peculiarities of equipment installation or operation.
 - 8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
 - 9. Review recommended tools and spare parts inventory suggestions of manufacturers.
 - 10. Review spare parts and tools required to be furnished by Contractor.
 - 11. Review spare parts suppliers and sources and procurement procedures.
- J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION 01 79 00

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SECTION 01 89 00 - SITE PREPARATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements (if any), apply to the work specified in Division 1.

1.02 DESCRIPTION OF WORK

- A. The extent of site preparation is shown on the drawings.
- B. Site preparation work includes, but is not limited to, the following:
 - 1. Site investigation
 - 2. Protection of existing trees and shrubs to remain
 - 3. Topsoil stripping and stockpiling on site
 - 4. Site clearing and removals
 - 5. Temporary construction staging areas
 - 6. Temporary construction fences and gates
 - 7. Asphalt milling
 - 8. Relocations
 - 9. Clean up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 20 00 – Earth Moving
- B. Section 32 92 00 – Turf and Grasses
- C. Section 33 40 00 - Storm Drainage Utilities

1.04 SITE INVESTIGATION

- A. Visit site before bidding and inform self of site conditions affecting work. No allowance will be made in the work of this contract for failing to determine site conditions.
- B. Verify locations and protect utilities and structures, whether or not shown on the drawings. Existing utilities and structures shown on the drawings are for the Contractor's convenience and locations are not guaranteed.
- C. Verify survey information given on drawings. Notify the Engineer of any and all discrepancies prior to commencing work. Commencement of work will be construed as complete acceptance of survey information.
- D. Locate and protect from disturbance existing survey monuments, pins, marker and benchmarks whether or not shown on drawings. When any disturbance or damage occurs, notify Architect in writing within 24 hours. Describe nature of disturbance or damage and date first occurred. Provide copies to applicable government and municipal agencies. Pay costs for restoring monument to satisfaction of said agencies, at no additional expense to the Owner.

1.05 JOB CONDITIONS

- A. Examine drawings and specifications for the entire project. Become familiar with the scope and sequencing of work required. Coordinate and cooperate with other Contractors and trades working in and adjacent to the project.
- B. Examine site work prepared prior to this contract. Commencement of work will be construed as complete acceptance of preparatory work by others.

- C. Obtain and pay for permits required by authorities. Perform the work in compliance with applicable standards, codes and requirements of governing authorities having jurisdiction.
- D. Safety is the sole responsibility of the Contractor.
- E. Burning on site and use of explosives are not permitted.
- F. Responsibility for existing utilities:
 - 1. Contact Underground Facilities Protection Organization (UFPO) at least two (2) full working days, and not more than ten (10) working days, before digging begins or as required by latest state law. Locate by hand excavation and provide protection from damage to existing utilities to remain in the area. (Tel. 1-800-962-7962)
 - 2. Existing utilities encountered within excavated areas shall be supported, blocked and/or braced in a manner approved by the Owner of the utility. Leave supports in place to the extent required by the Owner of the utility.
 - 3. Should uncharted or incorrectly charted utilities be encountered, notify the Engineer immediately for directions as to procedure. Walk the site with the Owner's Building and Grounds Superintendent to discuss approximate locations of reputed utilities not shown on the survey.
 - 4. Do not break utility connections without providing temporary services as acceptable to the Engineer.
 - 5. Repair and pay for damages to existing utilities as directed by utility owner at no additional cost to the Owner.
 - 6. Cap ends of utilities to be abandoned or removed in accordance with regulatory agencies and as directed by the Engineer.
- G. Provide protections and conduct operations to prevent injury and damage to persons, work of other Contractors, existing items to remain, structures, pavements, and adjacent properties.
- H. Restore work damaged by this Contractor inside and outside the contract limits to the condition existing prior to the start of work, unless otherwise directed to the satisfaction of the Architect at no additional cost to the Owner.
 - 1. Owner's onsite Representative to take dated photographs of existing conditions prior to the start of construction. Contractor shall restore all existing surfaces to their pre-construction condition upon project completion prior to final payment.
- I. Vehicular and pedestrian traffic control:
 - 1. Maintain vehicular and pedestrian traffic during construction activities.
 - 2. Provide alternate routes and traffic control around closed and obstructed traffic ways as required by governing regulations.
 - 3. Provide temporary fencing, flag persons, barricades, warning signs, and warning lights to protect the public and cause the least interruption of work.
- J. Field Measurements: Take necessary field horizontal and vertical measurements required in order to perform the work. Assume complete responsibility for accuracy of such requirements.
- K. Removal of snow, debris and clean up:
 - 1. Control air pollution caused by dust and dirt; comply with governing regulations. Water to control dust when necessary. Provide water sprinkling materials, equipment, and labor to prevent the nuisance of dust to the surrounding areas.
 - 2. Legally dispose of removed and demolished items, including trash and debris off the Owner's property, at a licensed disposal facility having adequate capacity to accept the project's waste.
 - 3. Burning of combustible materials on the site is not permitted.

4. During the contract and at intervals as directed by the Architect, clear the site of extraneous materials, rubbish, and debris. Leave the site in a clean, safe, neat, well-draining condition.
5. Soil and Snow Removal: Sweep roads, access ways, paved areas, and parking areas where soil, mud and debris have dropped or tracked from construction and delivery vehicles. Remove snow and ice from roads, access ways, paved areas and parking areas utilized for construction purposes.
- L. Construction Review - General: Site visits will be made by the Architect and/or Engineer to observe construction conformance to drawings and specifications. The occasional site visits by the Architect and/or Engineer shall not be construed as supervision of construction or make him responsible for the safety programs and precautions, including but not limited to the safe access, visit, use, work travel, or occupancy of any person. Site visits shall not make the Architect and/or engineer responsible for means, methods, techniques, sequences or procedures of construction selected by the Construction Manager, Contractor or his Sub-contractors.
- M. Site Complexity: The existing sites will be intensively developed. Because of the construction and resulting graphic complexity, it is impractical to show every detail. However, the general design intent is clearly shown and shall be applied to individual conditions not specifically shown as directed by the Engineer and at no additional cost to the Owner.
- N. Asbestos, Toxic and Hazardous Materials: The Division 2 site work contract does not include testing for, handling or removal of asbestos, toxic or hazardous waste materials. If any such materials are encountered during any part of the site work, the Contractor is responsible for identifying potential hazardous material and immediately (within one (1) hour of discovery) notifying the Architect, Engineer, Consultants, Owner and governing agencies having jurisdiction. The Owner shall provide testing and removal by others, under separate contract. The Contractor shall recommence work under this contract when the Owner provides written certification that removal is complete. The Contractor shall not be penalized for any delays caused by the hazardous testing and removal. The Contractor shall indemnify and hold harmless the Architect, Engineer, Consultants and Owner, agents, and employees from and against claims, damages, losses and expenses, direct and indirect or consequential damages, including but not limited to fees and charges of attorneys and court and arbitration costs, arising out of or resulting from the performance of the work by the Architect, Landscape Architect, Consultants and Owner, or claims against the Architect, Landscape Architect,
 1. Consultants and Owner arising from the work of others, related to hazardous waste.
 2. The above indemnification provision extends to claims against the Architect, Engineer, Consultants, and Owner which arise out of, are related to, or are based upon the dispersal, discharge, escape, release, or saturation of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, or pollutant in or into the atmosphere, or on, onto, upon, in or into the surface or subsurface soil, water or water courses, objects, or any tangible or intangible matter, whether sudden or not.
- O. Salvageable Items: Remove at any time after work starts. Storage or sale on site of salvageable and removed items is not permitted. Do not remove topsoil from site without written permission from the Owner.
- P. The terms "Architect" and "Engineer" for Division 2 work shall mean Passero Associates, 242 W. Main St., Rochester, NY 14614, Tel. (585) 325-1000.

Q. SUBMITTALS/PROCEDURES: Submit Tests, Shop Drawings, Material Certificates (showing content/mechanical analysis) and Manufacturer's Product Data (MPD) to Engineer for review a minimum of two (2) weeks prior to installation.

1. Provide a minimum of five (5) copies from material producer or laboratory, stamped as checked and approved by the Contractor before submittal to the Engineer or as otherwise indicated in Division 1.
2. Refer to individual specification sections for a list of required submittals.
3. For each material certificate required, provide certification by an Engineer approved independent testing laboratory which gives analysis results and states that the material complies with or is superior to the specified requirements.

1.06 SUBMITTALS: (SEE SECTION 01 30 00)

- A. Provide material certificate showing content/mechanical analysis for granular backfill.
- B. Provide photographic documentation. Photographically document existing features which, may be affected by the construction, inside and outside the contract limit line. Existing features include, but are not limited to structures, pavements, curbs, utilities, lawns and vegetation, especially individual trees which are over six (6") inches in diameter and noted to remain on the drawings. Also, particular attention shall be paid to the construction access. Distribute a copy of the photographic documentation (color prints or high-quality video cassette tape) to the Owner and Architect prior to construction.

PART 2 - PRODUCTS

2.01 GRANULAR BACKFILL

- A. Backfill shall be run of bank gravel meeting the following gradation as determined by ASTM-C136:

<u>Standard Sieve Size</u>	<u>Percent Passing By Weight</u>
2" or 55 mm	100%
3/4" or 19 mm	75 - 90%
1/4" or 6.3 mm	30 - 65%
#40 or .425 mm	5 - 40%
#200 or .75 mm	0 - 8%

- B. Backfill shall be free of debris and deleterious materials. In no case shall the plasticity index exceed 5.0 or the percentage passing the 200 mesh sieve exceed 8%. The quality of the backfill shall be determined by the magnesium sulfate soundness test. The maximum percent loss at four cycles by weight shall be 20.

2.02 PROTECTIVE DEVICES

- A. Shall include, but not be limited to; temporary tree protection materials, temporary fences, planks, lights, barricades, coverings and other temporary protections.

PART 3 - EXECUTION

3.01 PROTECT EXISTING VEGETATION TO REMAIN

- A. Protect and keep existing vegetation to remain free from physical damage. Keep in a healthy, vigorous growing condition for the entire construction period as follows:
 1. Specimen and Individual Trees: Protect each as noted and detailed. Do not store materials, run equipment, or otherwise disturb area within the drip line (full canopy of tree).
- B. Rejuvenate damaged trees and shrubs by pruning watering, fertilizing, staking and other methods. Replace trees and other vegetation that cannot be restored to full growth with comparable size, quantity, quality and species.

3.02 TOPSOIL STRIPPING AND STOCKPILING ON SITE

- A. Strip full depth of existing topsoil from areas to be regraded, paved, or otherwise built upon. Topsoil shall be well drained, homogeneous texture soil of uniform grade, without the admixture of subsoil material. Topsoil shall be free of dense material, hardpan, and stone over one (1") inch in diameter, and other objectionable foreign material including, but not limited to, glass, nails, screws, toxins, hazardous wastes and chemicals (such as atrazine and muriatic acid) that may be injurious to humans, animals and plant materials.
- B. Minimum quantity of topsoil shall be as needed to provide four (6") inches settled depth lawn areas. Verify quality and quantity. Presume in Base Bid that since proposed paved areas are decreased and lawn area are increased, additional topsoil will need to be furnished and placed. Supply imported topsoil when amount of available topsoil meeting above requirements is less than what is required for the proposed lawn areas. See Section 02800 for imported topsoil requirements.
- C. When amount of available topsoil meeting above requirements exceeds what is required for the proposed lawn areas, lower the lawn subgrade and place additional topsoil in a uniform depth. Maintain finish grades as shown on the drawings. This work shall be performed at no additional cost to the Owner.
- D. Do not mix topsoil stockpiles with other materials. Do not remove topsoil from site without written permission by the Owner.

3.03 SITE CLEARING AND REMOVALS

- A. Items and materials noted to be removed shall become the property of the Contractor, unless otherwise noted. Obtain Owner's approval prior to removal off site or for relocation of salvaged material on site. Remove material off site and legally dispose it. Backfill voids with granular material, placed in eight (8") inch layers compacted to maximum density.
- B. Remove physical elements above and below grade as shown or which interfere with proposed construction. Physical elements include but are not limited to: trees, root systems, shrubs, vines, grass, vegetation, pavements, walks, curbs, gutters, foundations, previous construction materials, glass, headwalls, flared end sections, catch basins, manholes, inlets, drywells, septic tanks, unused utilities, pipes, cisterns, walls, rocks, and other debris.
- C. Trees, stumps, shrubs and roots shall be completely removed and disposed of legally off site.
- D. Maintain existing utilities shown to remain and protect from damage during demolition and construction operations. Do not interrupt existing utilities; provide temporary services when required, as acceptable to the Architect.
- E. Research with appropriate authority on locations of existing subsurface utilities prior to excavating.

3.04 TEMPORARY CONSTRUCTION STAGING AREAS

- A. Near the project completion, remove any temporary fencing and staging areas.

3.05 ASPHALT MILLING

- A. The Contractor has the option to remove existing asphalt and legally dispose off site or;
- B. Mill existing asphalt and use as satisfactory general fill when it meets gradation noted in Section 32 12 16 or;
- C. Mill existing asphalt and use as granular backfill (for new pavements) when it meets gradation noted in Section 32 12 16, 2.1 for maximum 50% of the specified depth. Provide a mechanical analysis based on ASTM C136 for approval prior to installation.

D. RELOCATIONS

- E. Any item noted to be relocated shall be removed by the Contractor from its existing position without damaging it, stored, protected from theft, fire, vandalism and damage. Reset in the location(s) and in the manner detailed, noted on the drawings or specified.
- F. Backfill voids with granular backfill material, placed in eight (8") inch layers compacted to 95% maximum density.

3.06 CLEAN UP

- A. As site preparation is completed, clear the site of extraneous materials, rubbish, and debris. Leave the site in a clean, safe, well draining, neat condition.

END OF SECTION 01 89 00

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building demolition .
- B. Selective demolition of building elements for alteration purposes.
- C. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

- A. Section 00 31 00 - Available Project Information: Existing building survey conducted by Owner; information about known hazardous materials.
- B. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.
- C. Section 01 10 00 - Summary: Description of items to be removed by Owner.
- D. Section 01 10 00 - Summary: Description of items to be salvaged or removed for re-use by Contractor.
- E. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- F. Section 01 60 00 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- G. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- H. Section 01 74 19 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.
- I. Section 02 65 00 - Underground Storage Tank Removal.
- J. Section 31 23 23 - Fill: Filling holes, pits, and excavations generated as a result of removal operations.

1.03 SUBMITTALS

- A. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
 - 3. Include a summary of safety procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.
- C. Pre-demolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Comply with Division 01 Section "Photographic Documentation." Submit before Work begins.

1.04 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
 - 1. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 2. Standards: Comply with ANSI A10.6 and NFPA 241.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. Remove the entire building , once items to be salvaged are removed from the building.
- B. Remove paving and curbs as required to accomplish new work.
- C. Within area of new construction, completely remove foundation walls and footings.
- D. Remove concrete slabs on grade within site boundaries.
- E. Remove underground tanks.
- F. Remove manholes and manhole covers, curb inlets and catch basins.
- G. Remove other items indicated, for salvage, relocation, and recycling.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
 - 5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 7. Do not close or obstruct roadways or sidewalks without permit.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- E. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- F. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.
- G. Underground Storage Tanks: Remove and dispose of as specified in Section 02 65 00.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION

- A. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area on-site as designated by Owner.
 - 5. Protect items from damage during transport and storage.
- B. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 - 2. Protect items from damage during transport and storage.
 - 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION 02 41 00

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SECTION 31 20 00 - EARTH MOVING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Excavating and backfilling for buildings and structures.
 - 2. Drainage course for concrete slabs-on-grade.
 - 3. Excavating and backfilling trenches for utilities and pits for buried utility structures.

1.03 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Geotechnical Engineer-of-Record. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Geotechnical Engineer-of-Record. Unauthorized excavation, as well as remedial work directed by Geotechnical Engineer-of-Record, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.04 SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 - 1. Warning tapes.
- B. Samples for Verification: For the following products, in sizes indicated below:
 - 1. Warning Tape: 12 inches long; of each color.
- C. Qualification Data: For qualified testing agency.
- D. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
 - 1. Classification according to ASTM D 2487.
 - 2. Laboratory compaction curve according to ASTM D 1557.

1.05 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.
- D. Do not commence earth moving operations until temporary erosion- and sedimentation-control measures are in place.
- E. Do not commence earth moving operations until plant-protection measures are in place.

PART 2 PRODUCTS**2.01 SOIL MATERIALS**

- A. Provide soil materials as recommended in the Geo-Tech report. For materials that are not covered in the report, provide as listed below.
- B. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- C. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- D. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- E. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

- G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- H. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- I. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
- K. Sand: ASTM C 33; fine aggregate.
- L. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.02 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Red: Electric
 - 2. Yellow: Gas, oil, steam, and dangerous materials
 - 3. Orange: Telephone and other communications
 - 4. Blue: Water systems
 - 5. Green: Sewer systems

PART 3 EXECUTION

3.01 PREPARATION

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

3.02 DEWATERING

- A. Follow recommendations of the Geo-Tech report.
- B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.03 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Where conditions are favorable, the CONTRACTOR may elect to open the excavation with the sides sloped to the natural angle of repose of the material, provided he obtains prior written permission from the OWNER. Cut unsupported excavations to a stable slope, but in no case steeper than 1 horizontal on 1 vertical.

3.04 EXCAVATION FOR STRUCTURES

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

3.05 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
 - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
 - 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 - 1. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
 - 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
 - 3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
 - 4. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.06 SUBGRADE INSPECTION

- A. Notify Geotechnical Engineer-of-Record when excavations have reached required subgrade.
- B. If Geotechnical Engineer-of-Record determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Geotechnical Engineer-of-Record, and replace with compacted backfill or fill as directed.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Geotechnical Engineer-of-Record, without additional compensation.

3.07 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2,500 psi, may be used when approved by Geotechnical Engineer-of-Record.
1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Geotechnical Engineer-of-Record.

3.08 STORAGE OF SOIL MATERIALS

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

3.09 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
1. Construction below finish grade including, where applicable, subdrainage, damp-proofing, waterproofing, and perimeter insulation.
 2. Surveying locations of underground utilities for Record Documents.
 3. Testing and inspecting underground utilities.
 4. Removing concrete formwork.
 5. Removing trash and debris.
 6. Removing temporary shoring and bracing, and sheeting.
 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.10 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Backfill voids with satisfactory soil while removing shoring and bracing.
- D. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- E. Place and compact final backfill of satisfactory soil to final subgrade elevation.

3.11 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under steps and ramps, use engineered fill.
 - 2. Under building slabs, use engineered fill.
 - 3. Under footings and foundations, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.12 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within two percent (2) of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by two percent (2%) and is too wet to compact to specified dry unit weight.

3.13 COMPACTION OF SOIL BACKFILLS AND FILLS

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

3.14 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Place drainage course 6 inches or less in compacted thickness in a single layer.
 - 2. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.

3. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

- A. Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections:
 1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
 2. Determine that fill material and maximum lift thickness comply with requirements.
 3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
- B. Testing Agency: Contractor will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Geotechnical Engineer-of-Record.
- E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2,000 sq. ft. or less of paved area or building slab, but in no case fewer than three (3) tests.
 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length, but no fewer than two (2) tests.
 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length, but no fewer than two (2) tests.
- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

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

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Geotechnical Engineer-of-Record.

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

END OF SECTION 31 20 00

SECTION 31 23 16 - EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for building volume below grade, footings, slabs-on-grade, paving, site structures, and utilities within the building.
- B. Trenching for utilities outside the building to utility main connections.
- C. Temporary excavation support and protection systems.

1.02 RELATED REQUIREMENTS

- A. Section 00 31 32: Geotechnical report; bore hole locations and findings of subsurface materials.
- B. Section 31 23 23 - Fill: Fill materials, backfilling, and compacting.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Temporary Support and Excavation Protection Plan.
- C. Field Quality Control Submittals: Document visual inspection of load-bearing excavated surfaces.

1.05 QUALITY ASSURANCE

- A. Temporary Support and Excavation Protection Plan:
 - 1. Indicate sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.
- B. Survey existing adjacent structures and improvements and establish exact elevations at fixed points to act as benchmarks.
- C. Determine the prevailing groundwater level prior to excavation. If the proposed excavation extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by Architect. If the proposed excavation extends more than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with a comprehensive dewatering procedures, or as directed by Geotechnical Engineer.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, and protect utilities that remain and protect from damage.
- C. Notify utility company to remove and relocate utilities.
- D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Protect plants, lawns, rock outcroppings, and other features to remain.
- F. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Architect.

3.03 TEMPORARY EXCAVATION SUPPORT AND PROTECTION

- A. Excavation Safety: Comply with OSHA's Excavation Standard, 29 CFR 1926, Subpart P.
 - 1. Excavations in stable rock or in less than 5 feet (1.5 m) in depth in ground judged as having no cave-in potential do not require excavation support and protection systems.
 - 2. Depending upon excavation depth, time that excavation is open, soil classification, configuration and slope of excavation sidewalls, design and provide an excavation support and protection system that meets the requirements of 29 CFR 1926, Subpart P:
- B. Leave excavation support and protection systems, used as formwork or within 10 feet (3.03 m) of existing foundations, permanently in place, unless otherwise noted.
- C. Excavation support and protection systems not required to remain in place may be removed subject to approval of Owner or Owner's Representative.
 - 1. Remove temporary shoring and bracing in a manner to avoid harmful disturbance to underlying soils and damage to buildings, structures, pavements, facilities and utilities.

3.04 EXCAVATING

- A. Excavate to accommodate new structures and construction operations.
 - 1. Excavate to the specified elevations.
 - 2. Excavate to the length and width required to safely install, adjust, and remove any forms, bracing, or supports necessary for the installation of the work.
 - 3. Cut utility trenches wide enough to allow inspection of installed utilities.
- B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Provide temporary means and methods, as required, to remove all water from excavations until directed by Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.05 FILLING AND BACKFILLING

- A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.

3.06 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces by Architect before placement of foundations.

3.07 CLEANING

- A. Remove excavated material that is unsuitable for re-use from site.
- B. Remove excess excavated material from site.

3.08 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

- E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION 31 23 16

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SECTION 31 23 23 - FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for building volume below grade.
- B. Backfilling and compacting for utilities outside the building to utility main connections.
- C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

- A. Section 00 31 32: Geotechnical report; bore hole locations and findings of subsurface materials.
- B. Section 03 30 00 - Cast-in-Place Concrete.
- C. Section 31 23 16 - Excavation: Removal and handling of soil to be re-used.
- D. Section 31 25 00 - Erosion, Sediment and Pollution Control

1.03 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: Indicated on drawings.

1.04 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses; 2017.
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.
- D. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- E. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2018.
- F. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- H. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- I. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017.
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data for Manufactured Fill.
- C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
- D. Compaction Density Test Reports.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

- B. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill - Fill Type 1: Conforming to State of NY Highway Department standard.
- B. General Fill - Fill Type 2: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
 - 3. Conforming to ASTM D2487 Group Symbol CL.
- C. Structural Fill - Fill Type 3: Conforming to State of NY Highway Department standard.
- D. Structural Fill - Fill Type 4: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
 - 3. Conforming to ASTM D2487 Group Symbol CL.
- E. Concrete for Fill: As specified in Section 03 30 00; compressive strength of 2500 psi (17.235 MPa).
- F. Granular Fill - Gravel - Fill Type 5: Coarse aggregate, conforming to ASTM size #5 or equal.
 - 1. Graded in accordance with ASTM C136/C136M, within the following limits:
 - a. 1-1/2 inch (50 mm) sieve: 100 percent passing.
 - b. 1 inch (25 mm) sieve: 90 to 100 percent passing.
 - c. 3/4 inch (19 mm) sieve: 20 to 55 percent passing.
 - d. 1/2 inch (16 mm) sieve: 0 to 10 percent passing.
 - e. 3/8 inch (9 mm) sieve: 0 to 5 percent passing.
- G. Granular Fill - Pea Gravel - Fill Type 7: Natural stone; washed, free of clay, shale, organic matter.
 - 1. Grade in accordance with ASTM D2487 Group Symbol GM.

2.02 ACCESSORIES

- A. Vapor Retarder: 10 mil (0.25 mm) thick, polyethylene.

2.03 SOURCE QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Identify required lines, levels, contours, and datum locations.
- C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

- D. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

- A. Scarify and proof roll subgrade surface to a depth of 6 inches (150 mm) to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches (150 mm) compacted depth.
- F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches (200 mm) compacted depth.
- G. Slope grade away from building minimum 2 inches in 10 feet (50 mm in 3 m), unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Correct areas that are over-excavated.
 - 1. Load-bearing foundation surfaces: Fill with concrete.
 - 2. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.
- I. Compaction Density Unless Otherwise Specified or Indicated:
- J. Reshape and re-compact fills subjected to vehicular traffic.
- K. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch (25 mm) from required elevations.
- B. Top Surface of Filling Under Paved Areas: Plus or minus 1 inch (25 mm) from required elevations.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"), ASTM D1557 ("modified Proctor"), or AASHTO T 180.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Proof roll compacted fill at surfaces that will be under slabs-on-grade.

3.06 CLEANING

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Remove unused stockpiled materials, leave area in a clean and neat condition.
Grade stockpile area to prevent standing surface water.
- C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION 31 23 23

SECTION 31 25 00 - EROSION, SEDIMENT AND POLLUTION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide erosion, sediment and pollution controls as shown on the drawings and as directed by the Engineer to significantly reduce runoff on downstream properties. This includes temporary control measures to mitigate land disruption by other contractors during construction of this project.
- B. Erosion, sediment and pollution control includes, but is not limited to, the following:
 - 1. Standard control measures such as storm inlet protection and silt fence
 - 2. Off-site sediment tracking controls
 - 3. Temporary concrete washout facility
 - 4. Spill prevention, reporting and documentation
 - 5. Clean up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.
- D. Code Compliance: The New York State Department of Environmental Conservation requires a SPDES General Permit for Storm Water Discharges from Construction Activity. This Permit GP-0-10-001 is pursuant to the Environmental Conservation Law and has penalties and fines related to violations.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 20 00 - Earth Moving
- B. Section 33 40 00- Storm Drainage Utilities
- C. Section 32 92 00 - Turf and Grasses

1.03 SUBMITTALS:

- A. Material Certificates: Materials certificates showing content/mechanical analysis are required for the following products. Also, provide samples as noted.
 - 1. Granular Base Course Material: Sample
 - 2. No. 4 Stone for Off-Site Sediment Tracking Control
 - 3. 4,000 psi concrete (See Section 32 05 23)
- B. Listing of emergency contract numbers. This list shall include the name of an Emergency Response Contractor that may be used in certain situations.

1.04 QUALITY ASSURANCE

- A. Perform erosion, sediment and pollution control in compliance with applicable requirements of the New York Guidelines for NYS Standards and Specifications for Erosion and Sediment Control (latest edition) or other governing authorities having jurisdiction.
- B. It is this Contractor's responsibility to prevent stormwater pollution from running offsite. All pollution control work related to the site contract shall be included in the Base Bid. All pollution control work related to other contracts shall be on a time and material basis and back-charged to the responsible party.

- C. In the event of a chemical or hazardous spill or release, the individual(s) who caused the spill is responsible for prompt and proper clean-up. If the spill requires cleanup procedures beyond the means of the Contractor, an emergency spill cleanup Subcontractor shall be hired by the Contractor. They shall be utilized when the Contractor does not have the appropriate training, equipment or materials to clean-up the area safely and effectively. This shall be done at no additional cost to the Owner. Any testing required post cleanup shall be provided by the Contractor at no additional cost to the Owner.

1.05 CERTIFICATIONS

- A. Authorized, legally responsible signatures for the General Contractor, Site Earthwork, and Landscaping Subcontractor(s) shall sign and prominently display the following certification statement at the job trailer or office during the life of the project:
"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the Storm Water Pollution Prevention Plan (SWPPP) for the construction site identified in such plan as a condition of authorization to discharge storm water. I also understand that the operator (person, persons, or legal entity which owns or leases the property on which the construction activity occurs) must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

1. General Contractor	Signature: _____
	Name: _____
	Title: _____
	Address: _____

	Phone No.: _____
	Fax No.: _____
2. Earthwork Contractor	Signature: _____
	Name: _____
	Title: _____
	Address: _____

	Phone No.: _____
	Fax No. _____
3. Landscaping Contractor	Signature: _____
	Name: _____
	Title: _____
	Address: _____

	Phone No.: _____
	Fax No. _____
4. Other Contractors	Signature: _____
As determined by Owner's Rep:	Name: _____
	Title: _____
	Address: _____

	Phone No.: _____
	Fax No.: _____

1.06 INSPECTIONS AND MAINTENANCE

- A. The Contractor shall provide timely maintenance and inspections of vegetation erosion and sediment control measures, and other protective measures, during construction. The Contractor shall keep a written record of maintenance and corrective work in a journal. The journal shall be made available for the Operator, Architect, Engineer, and NYSDEC until the site is finally stabilized.
- B. The Contractor shall conduct daily inspections of the equipment staging and maintenance, fueling, hazardous waste staging and waste storage areas to ensure that spill control measures are in place. Stock appropriate clean-up materials whenever changes occur in the types of chemicals used or stored on site.

1.07 REFERENCES

- A. Spill Guidelines Manual (SGM) New York State Dept. of Environmental Conservation.

1.08 SPILL PREVENTION, REPORTING AND DOCUMENTATION

- A. To minimize the potential for discharge to the environment of oils, petroleum, or other hazardous substances, the following requirements shall apply:
 - 1. All oil, petroleum, or hazardous materials stored or temporarily relocated on site during the construction process shall be stored in a way to provide protection from vehicular damage and to provide containment of leaks or spills. Temporary berms, dikes, storage basins, or similar methods shall be employed as appropriate on site.
 - 2. Maintain file of Material Safety Data Sheets (MSDSs) or other references for recommended spill clean-up methods and materials.
 - 3. Keep spill response equipment readily accessible.
- B. In the event of a spill contact the Construction Manager, Superintendent of Building and Grounds, and Architect. The Contractor shall also notify all other Contractors working around the area of the spill.
- C. If spilled material has entered any sanitary/storm sewer system then contact the municipality or agency with jurisdiction over the system, in addition to those listed in B and D
- D. The Contractor shall be responsible for the initiation of spill reporting and documentation procedures. All petroleum spills must be reported to NYSDEC Spill Hotline at 1-800-457-7362, less than two (2) hours following discovery. All petroleum spills must be reported to NYSDEC unless all of the following apply:

<u>Criteria</u>	<u>Description</u>
Quality	Must be known to be less than five (5) gallons.
Containment	Must be contained on an impervious surface or within an impervious structure. No access to the environment.
Control	Must be under control and not reach a drain or leave the impervious surface.
Clean up	Must be cleaned-up within two (2) hours of occurrence.
Environment	Must not have already entered into soil or groundwater or onto surface water.

- E. A release of a "reportable quantity"¹ or unknown amount of a hazardous substance must also be immediately reported to the NYSDEC Spill Hotline. Spills of reportable quantities of chemicals or "harmful quantities"² of oil to navigable waters must be reported to the federal National Response Center, 1-800-424-8802 or 1-202-426-2675.

1. ¹ Reportable Quantity: Refers to the quantity of a hazardous substance or oil that triggers reporting requirements under the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA) (USEPA, September 1992).
2. ² Harmful Quantity: Includes discharges that violate applicable water quality standards, cause a film, sheen, or discoloration on a water surface or adjoining shoreline; or cause a sludge or emulsion to be deposited beneath the water surface or shoreline (40 CFR 110.3).

PART 2 – PRODUCTS

2.01 STORM INLET PROTECTION

- A. Storm structure protection shall be 1/2 inch mesh hardware cloth covered with a polypropylene filter fabric. Standard of quality shall be Mirafi 100x as manufactured by NICOLON/MIRAFI GROUP, 3500 Parkway Lane, Norcross, Georgia , Exxon GTF-103S or Architect approved equal.
- B. Stakes: Shall be square, non pressure treated hardwood. Size as detailed.
OR
- C. 1A stone meeting the following requirements:

<u>Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
1/2 inch	100
1/4 inch	90-100
1/8 inch	0-15
No. 200	0-10

2.02 SILT FENCE

- A. Fence: Shall be a polypropylene filter fabric backed with non-pressure treated hardwood posts. Standard of quality for filter fabric shall be Mirafi 100X as manufactured by NICOLON/MIRAFI GROUP, 3500 Parkway Lane, Norcross, Georgia (Tel. 1-800-234-0484), Exxon GTF-103S or other Engineer approved equal.

2.03 STAKES: SHALL BE SQUARE, NON-PRESSURE TREATED HARDWOOD. SIZE AS DETAILED.

2.04 OFF-SITE SEDIMENT TRACKING CONTROLS

- A. No. 4 stone shall meet the following requirements:

<u>Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
4 inch	100
3 inch	90-100
2 inch	0-15
Passing No. 50	5-10
Passing No. 100	2-5

- B. Soil Stabilization Fabric: Shall be a commercially manufactured, UV stabilized low clogging, high flow, woven geotextile. Standard of quality shall be Mirafi 600X, as manufactured by NICOLON/MIRAFI GROUP, 3500 Parkway Lane, Norcross, Georgia or Architect approved equal.

2.05 TEMPORARY CONCRETE WASHOUT FACILITY

- A. Concrete washout facility to fully contain all concrete washout needs of the Work. Concrete washout facility shall be temporary straw bales that are lined with a single sheet of a minimum of 10 mil polyethylene sheeting that extends over the entire basin to prevent escape of discharge. Place a secure, non-collapsing, non-water collecting cover over the concrete washout facility prior to inclement weather to prevent accumulation and overflow of precipitation. Provide concrete washout to prevent discharge from concrete trucks or equipment cleaning to inlets, surface or groundwater. Concrete washout facility shall be no closer than 50 feet from environmentally sensitive areas such as water bodies, wetlands, and open drainage facilities and watercourses. Signs shall designate concrete washout facilities. Ensure that the concrete washout facility complies with all Federal, State and local laws, rules, and regulations. Ensure that the concrete washout facility is in place before delivery of concrete to site.

2.06 SPILL RESPONSE EQUIPMENT

- A. The following is a list of recommended spill control material. The Contractor is responsible to have spill control and personnel protective equipment readily available for the materials being used. Acquire sufficient quantities and types of appropriate spill control materials needed to contain any spills that can be reasonably anticipated. The need for equipment to disperse, collect and contain spill control materials should be on site at all times.
1. Personal Protective Equipment
 - a. Chemical Splash Goggles
 - b. Gloves
 - c. Boot Covers
 - d. Tyvek Aprons or Suits
 2. Absorption Materials
 - a. Spill Pillows and Socks
 - b. Absorbent Booms and Pads
 - c. Dikes for use on rough surfaces
 - d. Storm Structure Covers
 - e. "Loose" Absorbents
 3. Tools
 - a. Shovel, Broom, Brush
 - b. Disposal Bags
 - c. Sealing Tape
 - d. Hazardous Waste Stickers
 - e. "Danger" and "Keep Away" Signs
 - f. Five gallon pails or 20 gallon drums with polyethylene liners
- B. Basis of Design shall be provided by: 3M, 888-364-3577; New Pig Corporation; Dawg, Inc. or Architect approved equal.
- C. Place spill response equipment in a readily assessable location within or immediately adjacent to the project site.

PART 3 - EXECUTION**3.01 SIGNATURE REQUIREMENTS**

- A. Between the Pre-Construction Meeting and starting site work, the Contractor shall:

1. Sign the certification statements. Contractor shall prominently display the statements at the job site.
2. Review inspection and maintenance procedures. Decide where journals will be temporarily stored for review by NYSDEC, Operator (Owner), the Engineer, and Architect.
3. Designate specific Owner and Contractor personnel responsible for inspection and maintenance.

3.02 GENERAL EROSION CONTROL

- A. Install initial construction erosion control features, as indicated on drawings and specifications or as directed by the Engineer, prior to topsoil stripping, earthwork, and removal of existing vegetation. Keep the disturbance to a minimum. Install other features as described in the sequence of erosion, sediment and pollution control on the drawings.
- B. Start permanent seeding within seven (7) calendar days of rough grading. When this is not possible, provide temporary seeding of perennial rye grass at the rate of three pounds (3#) seed per one thousand (1,000 sf) square feet. Provide temporary seeding within seven (7) days on non-roof, non-paved areas. When adverse weather conditions prevent good germination, repeat seeding as directed by the Engineer until the area is stabilized. Till under temporary grass and fine grade when preparing for final seeding.
- C. Until a disturbed area is stabilized, trap runoff sediment by the use of debris basins, sediment basins, silt traps, or other methods acceptable to the Engineer and governing authorities.
- D. Provide erosion controls on slopes and swales traversing, bordering, or leaving the site. Limit the water flow to a nonerosive velocity.
- E. Inspect erosion and sediment control measures immediately after each rainfall and at least daily during prolonged rainfall. Make required repairs immediately.
- F. Remove sediment deposits when they reach approximately one-half of the height of the barrier. Dispose sediment in a manner that does not result in additional erosion or pollution.
 1. Provide prompt removal and disposal of rubbish and debris in accordance with the governing authorities.

3.03 MUNICIPAL SEWER

- A. Control erosion, siltation, and pollution to municipal sewers by taking appropriate measures such as, but not limited to, the following:
 1. Prevent petroleum products and excessive amounts of silt, clay, and muck from entering municipal sewers of New York State during construction.
 2. Prevent fresh concrete, concrete leachate, and washings from equipment and trucks, from entering municipal sewers of New York State during construction.
 3. Place silt fence to control erosion at the downslope edge of disturbed areas. This barrier to sediments is to be put in place before disturbance of the ground occurs and is to be maintained in good condition until disturbed land is heavily vegetated or otherwise permanently stabilized.
 4. Seed areas of soil disturbance resulting from this project with appropriate perennial grass seed and mulched with straw within seven (7) calendar days as described in general erosion control. Mulch shall be maintained until a suitable vegetative ground cover is established.

3.04 STORM INLET PROTECTION (IN LAWN AREAS)

- A. Cut fabric from a continuous roll to eliminate joints. If joints are needed they will be overlapped to the next stake.
- B. Space stakes evenly around inlet 3 feet apart and drive a minimum 18 inches deep. Spans greater than 3 feet may be bridged with the use of wire mesh behind the filter fabric for support.
- C. Fabric shall be embedded 1 foot minimum below ground and backfilled. It shall be securely fastened to the stakes and frame.
- D. A 2" x 4" wood frame shall be completed around the crest of the fabric for over flow stability.

3.05 STORM INLET PROTECTION (IN DISTURBED LAWN AND PAVED AREAS)

- A. Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block opening perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to stone in place.
- B. The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth over all block openings to hold stone in place.
- C. As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringed the outlet ("doughnut"). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet.
- D. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

3.06 SILT FENCE

- A. Locate as shown on drawings and as directed by the Engineer. Excavate trench along the lower perimeter(s) of site, along the contract limit line, and as indicated on the drawings. Place excavated material on uphill side of trench for backfilling.
- B. Drive stakes securely into the downhill side of the trench. When prefabricated silt fence with fabric attached to stakes is used, drive stakes so that fabric is buried in the ground as detailed.
- C. Backfill trench with excavated material, so that fabric is securely buried in the ground to prevent undermining. Tamp soil.
- D. Join sections by overlapping fabric between two (2) stakes. Set stakes simultaneously. Overlap by minimum six (6") inches, fold, and staple to prevent sediment bypass.
- E. Attach silt fence securely to stakes spaced no more than eight (8' o.c.) feet on center. Secure fence fabric to stake with minimum three one (1") inch staples.

3.07 OFF-SITE SEDIMENT TRACKING CONTROLS

- A. Install as detailed and shown on drawings to eliminate tracking sediment off site. Inspect after each rain storm and at least one (1) time per week. When sediment begins tracking off site, immediately replace stone with clean No. 4 stone to retain sediment on site. Remove fabric and stone at project completion. Complete construction of proposed final surface(s).

3.08 TEMPORARY CONCRETE WASHOUT FACILITY

- A. A sign shall be installed adjacent to each washout facility to inform concrete equipment operations to utilize the proper facilities. The sign shall be installed as detailed.
- B. Temporary concrete washout facility shall be constructed and maintained in sufficient quantity and size to contain all liquids and concrete waste generated by washout operations.
- C. Perform washout of concrete mixers, delivery trucks, and other delivery systems in designated areas only.
- D. Wash concrete only from mixer chutes into approved concrete washout facility.
- E. Plastic lining material shall be a minimum of 10-mil polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material. Liner seams shall be installed in accordance with manufacturers' recommendations.
- F. Contents of the concrete washout facility shall not exceed 50% capacity of the facility. At or before 50% capacity is reached, discontinue pouring concrete until the facility is cleaned out. Remove hardened concrete and properly dispose off site. Allow slurry to evaporate or remove from site and dispose off site. Immediately replace the liner if it gets damaged. Remove concrete washout facility when it is no longer needed.

3.09 SPILL RESPONSE EQUIPMENT

- A. Use per manufacturer's recommendations and as directed by the NYSDEC, or other governing agencies.

3.10 CLEAN UP

- A. During the contract and at intervals as directed by the Architect and as erosion, sediment and pollution control procedures are completed, clear the site of extraneous materials, rubbish, and debris. Leave the site in a clean, safe, well draining, and neat condition.
- B. Clean out contaminants, sediment, rubbish, construction debris, foreign objects and accumulated floatables from chambers and ponding areas thoroughly, immediately prior to final acceptance.

END OF SECTION 31 25 00

SECTION 32 05 23 - CONCRETE SITE WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of site concrete work is shown on the drawings.
- B. Site Concrete work includes, but is not limited to, the following:
 - 1. Concrete walks, pads, slabs, ramps, and parking
 - 2. Concrete stairs
 - 3. Concrete curb ramps with detectable warning system
 - 4. Concrete footings, bases, foundations, cradles, saddles, collars and thrust blocks
 - 5. Concrete scheduling April 1 to October 15
 - 6. Exterior anchoring cement non-shrink grout
 - 7. Clean up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 03 - Concrete
- B. Division 31 - Earthwork
- C. Division 22 - Plumbing
- D. Division 33 - Utilities

1.03 SUBMITTALS:

- A. Shop Drawings required for:
 - 1. Concrete stairs showing reinforcing
 - 2. Concrete retaining wall(s) showing reinforcing
 - 3. Concrete ramps showing reinforcing
- B. Materials certificates required for the following; also provide MPD and samples as noted:
 - 1. Granular Base Course
 - 2. 4,000 psi Concrete
 - 3. Expansion Joint and Sealant (Vertical and Horizontal): MPD
 - 4. Water Based Curing Compound: MPD
 - 5. Cold Weather Admixture
 - 6. Hot Weather Admixture
 - 7. Corrosion Inhibitor for Retaining Walls
 - 8. Air Entrainment
 - 9. Detectable Warning System
 - 10. Form Release
 - 11. Retaining Wall Sealer
 - 12. Retaining Wall(s) Backfill: Sample and Material Certificate
 - 13. Exterior Anchoring Cement Non-Shrink Grout
- C. Tests required for: Concrete Mixes and Strengths (Refer to 1.5 below)

1.04 JOB CONDITIONS

- A. Job conditions in Section 01 89 00 apply. Provide ample and skilled manpower for concrete installation which is a recognized time sensitive procedure.
- B. All concrete work shall conform to American Concrete Institute (ACI) 304R-00 "Guide for Measuring, Mixing, Transporting and Placing Concrete".

- C. Do not install concrete work when the temperature of the outside air is below 50 degrees F. and falling unless suitable means acceptable to the Architect are provided to protect work from cold and frost and ensure that mortar and concrete will cure without freezing as indicated in Cold Weather Concreting.
- D. Cold Weather Concreting: Provide non-chloride accelerating water reducing admixture in site concrete work placed at ambient air temperatures below 50 degrees F. (10 degrees C.). Comply with International Masonry Industry All-Weather Council cold weather construction and protecting recommendations and American Concrete Institute 306R-10 "Guide to Cold Weather Concreting."
- E. Hot Weather: Provide water reducing retarding admixture in site concrete work placed at ambient air temperatures above 80° F. Comply with American Concrete Institute 305R-10 "Guide to Hot Weather Concreting."
- F. Construction Review: Notify the Architect when stairs, retaining walls, walks, ramps, curbs and pads are formed and ready to receive concrete.
- G. Schedule: Unless otherwise directing in writing by the Owner, construct site concrete work from April 1 to October 15. This permits a minimum 30-day dry curing period prior to possible application of deicing chemicals by the Owner.
- H. Site concrete work performed between October 16 and March 30 will require an additional written 1 year guarantee with the understanding that above average concrete deterioration and replacement by the Contractor is likely.

OR

Provide temporary light duty asphalt access paths and replace with permanent concrete during the following April 1 to October 15 timeframe. Both options are at no additional cost to the Owner.

1.05 QUALITY ASSURANCE

- A. Concrete Testing Services: The Owner shall employ an acceptable independent testing laboratory to perform materials evaluation, testing of concrete mixes, and quality control testing. Coordinate day to day scheduling with the testing agency.
- B. Quality Control:
 - 1. Sampling and testing will be performed during concrete placement, as follows:
Sampling ASTM C 172; Slump ASTM C 143 minimum one test for each load at point of discharge; air content ASTM C 31 for each set of compressive strength specimens.
 - 2. Compressive Strength: ASTM C 39, one set for each 25 cu. yds. or fraction thereof; 2 specimens tested at 7 days, 3 specimens tested at 28 days, and one retained for later testing if required.
- C. Test results will be reported by telephone to the General Contractor and Architect on same day tests are made. Written report with copies will follow to the Owner, Architect, and Landscape Architect. 5 copies of laboratory test, evaluation reports for concrete materials and mix designs will be submitted.

1.06 ADA REQUIREMENTS

- A. GENERAL: Concrete site work shall comply with the Americans With Disabilities Act as described in the Federal Register, Part II, Architectural and Transportation Barriers Compliance Board, Vol. 56, No. 144, July 26, 1991 or latest edition if such exists, shall be used.
- B. Curb ramp and all concrete walk surfaces shall meet the following tolerances:
 - 1. Transitions from ramps to walks, gutters, or streets shall be flush and free of abrupt changes.

2. Thresholds at doorways shall not exceed 3/4" in height for exterior sliding doors or 1/2" for other types of doors. Raised thresholds and floor level changes at accessible doorways shall be beveled with a slope no greater than 1:2.
3. Detectable warning system shall cast in place for the safety and convenience of the visually impaired. Contractor shall have a minimum of three (3) years experience with materials and installation.
4. All exterior concrete walking surfaces shall be of heavy-duty, reinforced, durable, easily maintained, stable and have non-slip texture.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type 1A.
- B. Aggregates: ASTM C 33, coarse aggregate crushed limestone maximum size three-quarter (3/4") inch. Fine aggregate clean, sharp, natural sand.
- C. Water: Clean, drinkable.
- D. Air-Entraining Admixture: ASTM C 260, Darex AEA ED or Architect approved equal.
- E. Cold Weather Accelerating Admixture: (Ambient temperature below 50°F.) Non-chloride water reducing accelerating admixture, ASTM C494, Type C, PolarSet as manufactured by WR Grace & Co. or Architect approved equal. Mix at rates recommended by the manufacturer. No reduction in compression rating of the concrete is permitted.
- F. Hot Weather Water Reducing and Retarding Admixture: (Ambient temperature above 80° F.) Shall be Daratard series admixture, ASTM C494, Type D, as manufactured by WR Grace & Co. or Architect approved equal. Mix at a rate recommended by the manufacturer. No reduction in compression rating of the concrete is permitted.
- G. Ready Mix Concrete: ASTM C 94.
- H. Welded Wire Mesh: Flat sheets of 6 x 6 - W1.4 x W1.4 welded wire mesh for concrete walk-standard. Flat sheets of 6 x 6-W2.0 x W2.0 welded wire mesh for concrete walk-heavy duty. ASTM A 185 for mesh. Steel shall be free of rust and/or oxidation at time of use.
- I. Reinforcing Bars: Shall be newly deformed billet steel bars, free of rust and/or oxidation at time of use, conforming to ASTM A615, Grade 60. Reinforcing bars shall be bundled and tagged with grades and suitable identification markings shall be water proof and shall not be removed until steel is placed. Bar supports, chairs, spacers, etc. shall be of suitable types and in accordance with ACI 315. They shall provide sufficient supports at close enough spacing so that the steel will carry the weight of the workmen and the fresh concrete without deformation from its specified location.
- J. Forms: Either steel or wood, of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use forms that are straight and free of distortion and defects, extending the full depth of concrete.
- K. Form Ties: Shall be fiberglass rods tinted to match concrete.
- L. Form Release Agent: Shall be non-staining and non-residual. Increte Wall Form Release manufactured by Increte or Architect approved equal.
- M. Minimum Concrete Strength: In compression, shall be 4,000 psi at 28 days. Minimum cement content 6.5 bags/c.y., 30 to 32 gal/c.y., slump 2" to 4" provide air-entraining admixture 5 - 8-1/2%. Flexural strength ASTM C 78 650 psi at 28 days.
- N. Water Based Curing Compound: Standard of quality shall be Kure-N-Seal WB as manufactured by Sonneborn or Architect approved equal.

- O. Expansion Joints: Expansion joint filler shall be polyethylene closed cell backing with peel off strip, Sonolastic as manufactured by Sonneborn or Architect approved equal. Caulking for flat slabs shall be one part elastomeric self leveling polyurethane gray sealant Sonolastic SL1 or Architect approved equal. Caulking for vertical surfaces shall be one component elastomeric gun grade polyurethane sealant Sonolastic NP1, color as selected by the Owner to match wall stain or Architect approved equal.
- P. Corrosion Inhibitor for Retaining Walls: Shall be a Calcium Nitrite Admixture meeting ASTM C494, Type C, DCI as manufactured by WR Grace & Co. or Architect approved equal.

2.02 DETECTABLE WARNING SYSTEM

- A. Cast in place vitrified polymer composite (VPC) detectable/tactile warning tiles shall be an epoxy polymer composition with aluminum oxide particles in the truncated domes. Standard of quality shall be Armor-Tile 24" x 48" cast-in-Place Inline Dome Tactile Tile (ADA-C-2448) as manufactured by Engineered Plastics, Inc. 800-682-2525 or Architect approved equal.
- B. Color shall be colonial red (Federal No. 20109) or Architect approved equal.
- C. Guarantee period shall be five (5) years from substantial completion including defective work, breakage, deformation, and loosening tiles.

PART 3 - EXECUTION

3.01 CONCRETE WALKS, PADS, RAMPS, AND PARKING AREAS

- A. Surface Preparation: Remove loose material from the compacted subgrade surface immediately before placing concrete.
- B. Proof-roll prepared subgrade surface to check for unstable areas and the need for additional compaction. Do not begin paving work until such conditions have been corrected, subgrade is compacted and ready to receive paving.
- C. Form Construction: Construct to required size and shape. Brace and secure to maintain alignment, elevation and position. Check completed formwork for grade and alignment.
- D. Place welded wire mesh on concrete brick or mesh chairs to proper level. Lifting mesh after concrete pouring is not acceptable.
- E. Prepare concrete mixture including the following:
 - 1. Add air entrainment admixture as recommended by the manufacturer to achieve the range of 5 to 8½%.
 - 2. Add hot weather or cold weather admixture to accommodate field weather conditions.
 - 3. Add fiber reinforcement to concrete gutter mix only at the rate of 2.0 lbs/c.y. and as recommended by the manufacturer to the concrete mix.
 - 4. Add corrosion inhibitor to concrete retaining wall mix only at the rate of 2.0 gal/c.y. as recommended by the manufacturer. Prepare a trial mix several weeks before construction and adjust water and admixture percentages as directed by the Architect to achieve the optimum results.
- F. Concrete Placement: Do not place concrete until subgrade and forms have been checked for line and grade. Moisten granular base course as required to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they have been brought to the required finish grade, alignment, and expansion joints have been installed.

- G. Spread concrete as soon as it is deposited on the granular base course, using methods which prevent segregation of the mix, and with as little rehandling as possible. Consolidate concrete along the face of forms. Consolidate with care to prevent dislocation of mesh, reinforcing and joint materials.
- H. Install Concrete Walk Joints:
1. Construct expansion and contraction joints as detailed and as shown on plans. Concrete joints that do not follow the pattern(s) shown on the plans and/or changes that have been approved by the Architect will be removed and replaced at no additional cost to the Owner.
 2. When the walkway is abutting existing walks, place transverse joints to align with previously placed joints, unless otherwise shown.
 3. Contraction Joints: Approximately 5' on center. Break walk into individual slabs of not more than twenty-five (25 sf) square feet with jointing tool, round edges. Saw cut scoring pattern (contraction joints) to depth shown on details for each type of concrete work with new, sharp concrete sawblade one day after the pour. Joint cuts to be clean, sharp, uniformly made cuts to achieve scoring pattern as shown and detailed. Note: When tooled joints or saw cutting is not performed as described, an extended three (3 yr.) year written guarantee or credit for defective work will be required as determined by the Architect at no additional cost to the Owner.
 4. Expansion Joints: Provide where abutting building(s), columns, structures, concrete paving and curbs, catch basins, manholes, inlets, walks, walls, and other fixed objects.
 5. Locate expansion joints at thirty feet on center (30' o.c.) for each walkway lane, unless otherwise shown. Provide slip dowels as detailed.
 6. Locate expansion joints with slip dowels at flush building access points, whether specifically shown on drawings or not.
 7. Extend joint fillers full width and depth of the joint, flush with finished pavement grade, and not less than 1/4" or more than 1/2" below the finished pavement surface. Joint surfaces shall be clean and dry prior to installation of sealant as per manufacturer's recommendations. Remove excess sealant on surfaces adjacent to joint.
- I. Provide Concrete Finishing:
1. Perform concrete finishing using machine or hand methods as required.
 2. After striking off and consolidating concrete, smooth the surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture.
 3. After floating, test surface for trueness with a ten foot (10') straight edge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
 4. Work edges of slabs and joints with a 1/8" radius edging tool, two (2") wide, unless otherwise shown.
 5. After completion of floating and when excess moisture or surface sheen has disappeared, complete surface finishing, as follows.
 6. Broom finish, by drawing a medium hair broom across the concrete surface as detailed. Repeat operation when required to provide a medium texture acceptable to the Architect.
 7. For handicap curb ramps, tool grooves along sloping surfaces in line with drainage flow as detailed.
 8. Curing: Refer to schedule noted in 1.4, F and G above.

- a. Remove all dirt, dust, oil, grease, asphalt and foreign matter. Cleanse with caustics and detergents as required. Rinse thoroughly and allow to dry.
 - b. Stir thoroughly before using
 - c. Apply a continuous, uniform film by solvent-resistant low pressure spray only, short-nap roller or lamb's wool applicator. For best results, use a canister curing compound sprayer. Use tip number 8004 or equivalent for water-based or waterborne products.
 - d. For curing, apply first coat evenly and uniformly as soon as possible after final finishing. Apply second coat when all construction is completed and structure is ready for occupancy.
 - e. When soil contamination occurs, notify the Architect immediately in writing. Remove contaminated soils and legally dispose of, provide soil test(s), replace soil, plantings and lawns at no additional cost to the Owner.
- J. Detectable Warning System:
1. Pour and float concrete, set tile by tamping in grid pattern down into the concrete until all air voids are removed with a rubber mallet.
 2. Place two cinder blocks or 25 lbs weights on the tile to prevent floating.
 3. Create on edge around the perimeter of the tile using a 3/8" radius edging tool then float the concrete around the tile's perimeter using a steel trowel.
 4. After concrete has cured, remove protective plastic wrap.
 5. Protect tiles against damage during construction and clean tiles as recommended by the manufacturer.

3.02 CONCRETE CURB

- A. General: Curb shall meet the requirements specified for concrete in this Section, Item 3.1 above. Install forms true to line and grades given on plan. Provide permanent in place expansion joints using pre-molded expansion joint filler thirty feet (30' o.c.) on center, maximum. Install reinforcing bars as detailed. Remove forms in twenty-four (24) hours. Saw cut the contraction joints approximately 10' on center 1-1/2" deep with a new sharp concrete saw blade the next day after the pour along top and both faces of curb. Note: When the sawcutting is not performed as described, an extended written guarantee or credit for defective work will be required by the Architect.
- B. Finishing: Remove ties and patch tie holes, including those below grade. Remove fins and patch minor voids. Chip out major stone pockets and repair. Rub surface smooth with arborundum brick dipped in neat cement grout to fill pin holes. Trowelled on cement plaster is prohibited. After drying, rub off excess cement dust with burlap.
- C. Curing: See 3.01, I., 8. above.
- D. Slip-formed (machine formed curbs) are acceptable when installed in accordance with NYSDOT 609-3.04-B using Type "J" concrete and substituting #3 rebars as detailed in lieu of fiber mesh.

3.03 CONCRETE STAIRS

- A. General: Concrete stairs shall meet the requirements specified for concrete in this Section, Item 3.1, except as noted below.
- B. Verify that lines, levels, locations and form dimensions comply with drawings and submittals.
- C. Design, erect, support, brace, and maintain formwork to support applied vertical and lateral loads. Construct formwork to provide correct size, alignment, elevation, pitch on tread, and position of concrete work.
- D. Design and erect formwork to permit removal without damage to cast-in-place concrete surfaces and adjacent materials during stripping.

- E. Install, align, and level forms. Support and brace forms in place.
- F. Coat form surfaces with form release agent. Clean forms after each use and coat with form release agent as necessary to assure separation from concrete without damage. Apply before placing reinforcing steel, anchoring devices, and embedded items.
- G. Provide reinforcing bars adequately supported and secured to prevent displacement.
- H. Placement of concrete shall be in layers not to exceed 18 inches without consolidation with the aid of mechanical vibrating equipment. To achieve even and dense surfaces, free of aggregate pockets or honeycomb, vibration shall be supplemented by spading by hand in the corners and angles of forms and along surface while concrete is plastic under the vibratory action. Placement of concrete shall conform to recommendations of ACI 614-59.
- I. Install, set, and build-in items furnished by other trades. Provide adequate notification for installation of necessary items. Coordinate with reinforcing and hand railings.
- J. Remove ties and patch tie holes, including those below grade. Remove fins and patch minor voids. Chip out major stone pockets and repair. Rub surface smooth with carborundum brick dipped in neat cement grout to fill pin holes. Trowelled on cement plaster is prohibited. After drying, rub off all excess cement dust with burlap.
- K. Medium broom finish stair treads with strokes perpendicular to flow of pedestrian traffic, similar to walks. Other exposed concrete surfaces shall be rub finished similar to concrete curb.
- L. Provide abrasive aggregate non-slip finish on stair treads and landings. Work aggregate lightly into tread surface as recommended by manufacturer.
- M. Cure and seal as specified in this section, item 3.01 above.
- N. Strip Forms: 3 days minimum before stripping. It is the Contractor's responsibility to determine the time at which forms may be removed without damaging the walls.

3.04 CONCRETE RETAINING WALL

- A. General: Concrete retaining and seating wall(s) shall meet the requirements specified for concrete in this Section, Item 3.01, except as noted below.
- B. Verify that lines, levels, locations and form dimensions comply with drawings and submittals.
- C. Design, erect, support, brace, and maintain formwork to support applied vertical and lateral loads. Construct formwork to provide correct size, alignment, elevation, pitch on tread, and position of concrete work.
- D. Design and erect formwork to permit removal without damage to cast-in-place concrete surfaces and adjacent materials during stripping.
- E. Install, align, and level forms. Support and brace forms in place. Provide watertight joints, sealed to prevent leakage. Rustication strips are recommended at construction joints or between pours.
- F. Form Liners: Shall be placed adjacent with less than 1/4" seam; securely attach liner to forms per manufacturer's recommendations; continue wall ties with liner and from manufacturer. Liner shall be cleaned of all prior concrete build up prior to each pour shall be inspected for blemished and/or tears; repair if necessary per manufacturer's recommendation. Form release shall then be applied per manufacturer's recommendation.
- G. Provide reinforcing bars adequately supported and secured to prevent displacement.
- H. Seams: Liner butt joints shall be carefully blended into the approved pattern. No visible vertical or horizontal seams or conspicuous marks created by butt jointing form liners will be allowed. Work to conform to approved sample.

- I. Placement of concrete shall be in layers not to exceed 18 inches without consolidation with the aid of mechanical vibrating equipment. To achieve even and dense surfaces, free of aggregate pockets or honeycomb, vibration shall be supplemented by spading by hand in the corners and angles of forms and along surface while concrete is plastic under the vibratory action. Placement of concrete shall conform to recommendations of ACI 614-59.
- J. Install, set, and build-in items furnished by other trades. Provide adequate notification for installation of necessary items. Coordinate with reinforcing and hand safety railings.
- K. Strip Forms: Stripping form liners shall be done within 12-24 hours. It is the Contractor's responsibility to determine the time at which forms may be removed without damaging the walls or weakness to the substrate.
- L. Install drainage behind wall and retaining wall granular backfill to 95% compaction behind wall as detailed and specified in Section 2.04 above.
- M. Patches: Fill tie holes and defects, in concrete surface within 48 hours of form removal. Use the same patching materials and techniques that were approved on markup. Make patches with a still mortar made with materials from the same sources as the concrete. Adjust mortar mix if necessary to lighten it.
- N. The surface shall be sealed with the approved sealer, per manufacturer's instructions, if first approved by the Owner

3.05 CONCRETE RAMPS

- A. General: Concrete stairs shall meet the requirements specified for concrete in this Section, Item 3.1, except as noted below.
- B. Verify that lines, levels, locations and form dimensions comply with drawings and submittals.
- C. Design, erect, support, brace, and maintain formwork to support applied vertical and lateral loads. Construct formwork to provide correct size, alignment, elevation, pitch, and position of concrete work.
- D. Design and erect formwork to permit removal without damage to cast-in-place concrete surfaces and adjacent materials during stripping.
- E. Install, align, and level forms. Support and brace forms in place.
- F. Coat form surfaces with form release agent. Clean forms after each use and coat with form release agent as necessary to assure separation from concrete without damage. Apply before placing reinforcing steel, anchoring devices, and embedded items.
- G. Provide reinforcing bars adequately supported and secured to prevent displacement.
- H. Placement of concrete shall be in layers not to exceed 18 inches without consolidation with the aid of mechanical vibrating equipment. To achieve even and dense surfaces, free of aggregate pockets or honeycomb, vibration shall be supplemented by spading by hand in the corners and angles of forms and along surface while concrete is plastic under the vibratory action. Placement of concrete shall conform to recommendations of ACI 614-59.
- I. Install, set, and build-in items furnished by other trades. Provide adequate notification for installation of necessary items. Coordinate with reinforcing and hand railings.
- J. Remove ties and patch tie holes, including those below grade. Remove fins and patch minor voids. Chip out major stone pockets and repair. Rub surface smooth with carborundum brick dipped in neat cement grout to fill pin holes. Trowelled on cement plaster is prohibited. After drying, rub off all excess cement dust with burlap.
- K. Medium broom finish stair treads with strokes perpendicular to flow of pedestrian traffic, similar to walks. Other exposed concrete surfaces shall be rub finished similar to concrete curb.

- L. Provide abrasive aggregate non-slip finish on stair treads and landings. Work aggregate lightly into tread surface as recommended by manufacturer.
- M. Cure and seal as specified in this section, item 3.01 above.
- N. Strip Forms: 3 days minimum before stripping. It is the Contractor's responsibility to determine the time at which forms may be removed without damaging the walls.

3.06 FOOTINGS, BASES, FOUNDATIONS, SADDLES, CRADLES, COLLARS, AND THRUST BLOCKS

- A. Footings, Bases, Foundations: Locate and provide where shown on drawings as detailed.
- B. Saddles: Locate and provide where shown on drawings or where vertical distance between crossing pipes is eighteen (18") inches or less. Construct saddles springline (centerline) to springline and full width of trenches.
- C. Cradles: Locate and provide where shown on drawings. Construct cradles the full width of the trench, six (6") inches below the pipe and on both sides of the pipe up to the springline.
- D. Collars: Locate and provide where shown on drawings or where pipe slopes exceed ten (10%) percent. Construct collars one (1') foot thick, full width of trench plus one (1') foot extension each side, above and below pipe.
- E. Thrust Blocks: Locate and provide where shown on drawings. Also for sanitary force main and water pipes at (1) connections to existing systems, (2) at changes in horizontal alignment of 22-1/2 degrees or more, and (3) at tees, crosses, valves, hydrants and plug (end of pipe) conditions. Block and anchor with concrete so that there will be no movement of the pipe in the joints due to internal or external pressures. The concrete shall be placed around the fittings and completely fill the space between the fittings and walls of the trench, from 6" below the fittings of pipe, to 12" above the fittings. The anchor concrete shall be so placed that the bell and spigot joints or other joints may be recaulked or tightened if necessary. Concrete thrust blocks shall conform dimensionally to details shown on drawings.

3.07 REPAIR AND PROTECTION FOR CONCRETE WORK

- A. Cut out and replace defective concrete work which has blisters, cracking, crazing, curling, discoloration, dusting, efflorescence, low spots, pop outs, scaling or mortar flaking, spalling, settling, or heaving as defined by Portland Cement Association 2001 and as directed by the Architect.
- B. Protect the work from damage until acceptance of the work. Exclude traffic from concrete work for at least fourteen (14) days after placement. When construction traffic is permitted, maintain concrete as clean as possible by removing surface stains and spillage of materials as they occur.

3.08 ANCHORING BOLTS, RAILINGS, POSTS AND DOWELS INTO CONCRETE

- A. Aluminum posts must be coated or treated with a good sealer or paint prior to anchoring.
- B. Drill the hole as detailed. Blow out all dust and loose particles.
- C. Fill the hole with water. Scrub the sides and bottom of the hole and with a stiff wire brush such as a bottlebrush. This is important.
- D. Remove excess water with rag or other absorbent materials. Leave the hole clean and uniformly damp.
- E. Mix the Super Por-Rok cement in a clean container to flowable consistency based on the following formula. For best results, measure accurately. The correct amount of water is as follows:
 - 2.3 oz per lb
 - 11.5 oz for 5 lbs

115 oz for 50 lbs

7 quarts for 100 lbs

Measure the amount of Super Por-Rok and water to be mixed. Add the measured amount of water to the appropriate amount of cement and mix until the desired consistency is achieved. (NEVER USE MORE WATER THAN PRESCRIBED. This will reduce the ultimate strength, increase the possibility of volume instability and may cause the product to become soft and less durable.)

- F. Fill the hole with the plastic cement first, and then tamp the bolt. Post or rod with a twisting motion into place. If the material becomes too fluid during the tamping process and sags out of place, let it stand for a few minutes and it will stiffen. Smooth out the surface around the bolt with spatula or trowel.
- G. Let the cement harden for at least 60 minutes. For heavy equipment, allow 4 hours prior to use or loading.

3.09 CLEAN UP

- A. During the contract and at intervals as directed by the Architect and as concrete work is completed, clear the site of gravel, concrete, appurtenances and debris. Leave the site in a clean, safe, well draining, neat condition.

END OF SECTION 32 05 23

SECTION 32 12 16 - ASPHALT PAVING**PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. The extent of asphalt paving is shown on the drawings.
- B. Paving work includes, but is not limited to, the following:
 - 1. Soil stabilization fabric
 - 2. Granular base course-gravel
 - 3. Asphaltic pavements
 - 4. Painted line markings, shapes and handicap symbols
 - 5. Hot pour crack sealant
 - 6. Clean up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications. Work shall meet NYSDOT Section 400 Hot Mix Asphalt Standard Specification 1/2/02 or latest issue.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 31 - Earthwork
- B. Division 32 - Exterior Improvements
- C. Division 33 - Utilities

1.03 SUBMITTALS

- A. Provide material certificates showing content/mechanical analysis for the following.
Provide samples only as noted:
 - 1. Soil Stabilization Fabric: MPD
 - 2. Granular base course-gravel: Sample
 - 3. Asphaltic Concrete: NYSDOT, Type 2 Base Course, Type 3 Binder Course and Type 7F Wearing Course.
 - 4. Paint for lines, shapes and handicap symbols: MPD
 - 5. Hot pour crack sealant

1.04 JOB CONDITIONS

- A. Job conditions in Section 01 89 00 apply.
- B. Atmospheric conditions for applying courses:
 - 1. Place asphalt concrete wearing course only when atmospheric temperature is above 50 degrees F. and rising, and when asphalt binder course is dry.
 - 2. Place binder course only when air temperature is above 45 degrees F. and rising and when asphalt base course or granular base course is dry.
- C. Grade Control: Establish and maintain required lines and elevations.
- D. Codes and Standards: Perform the work in compliance with applicable requirements of governing authorities having jurisdiction. Obtain and pay for permits required by local authorities.
- E. Construction Review: Notify the Architect when the subgrade is shaped and ready for proof rolling and string grading. Also, when the granular base course is fully installed and ready for the asphalt binder course.
- F. When staging occurs and wearing course cannot be installed before winter, provide temporary asphalt transition ramp/collar around drainage structures in paved areas and at handicap ramps to prevent damage by snow plow at no additional cost to the Owner. Remove prior to installation of wearing course, power wash surface and apply asphalt tack coat at no additional cost to the Owner.

1.05 QUALITY ASSURANCE

- A. Subgrade Preparation: Density tests shall be as described in Section 31 20 00, 1.3.
- B. Granular Base Course: Density tests shall be as described in Section 31 20 00, 1.3.
Twelve (12) soil in place density tests will be performed by the Owner's testing agency.
- C. The paving contractor shall have the experience of at least three (3) similar installations within the past three (3) years. These installations shall be in locations and operating conditions similar to those for this project.
- D. Prior to final acceptance of the asphalt and before lining or other surface materials are placed, the Owner's testing agency will core three (3) 3" diameter areas of the asphalt surfacing where directed by the Architect. Consistency, density, and thickness will be evaluated. Patch core areas as directed by the Architect to match adjacent density, texture and thickness. Coordinate day to day scheduling with the Owner's testing agency. If cores vary significantly from the contract requirements, additional cores will be performed by the Owner's testing agency as directed by the Architect. Once the overall general quality is determined, provide remedial work as directed by the Architect to achieve the quality as specified.

PART 2 – PRODUCTS (IF REPAIRED)**2.01 SOIL STABILIZATION FABRIC**

- A. Shall be a heavy duty, commercially manufactured woven polypropylene geotextile. Standard of quality shall be Mirafi HP370 or Architect approved equal.

2.02 GRANULAR BASE COURSE

- A. Shall be run of bank gravel as specified in Section 01 89 00-2.1.

2.03 ASPHALTIC CONCRETE

- A. Shall conform to NYSDOT Standard Specifications, latest edition, Section 403 Hot Mix Asphalt Pavements suitable for low to moderate traffic volume; Type 2 Base Course, Type 3 Binder Course and Type 7F Wearing Course. Mix properties for Type 7F2 shall meet the following Marshall Mix Properties: air voids 3.0 to 5.0%, voids mineral aggregate shall have 16% minimum, voids filled with binder 65 to 78%, and performance graded binder 5.7 to 8.0% asphalt content.

2.04 PAINTED LINE MARKINGS

- A. Striping and Symbols: Use a traffic resistant paint, factory-mixed, regular-drying, and non-bleeding for striping, symbols and arrows. Use acrylic or latex white paint. NOTE: Glass beads are not required.

2.05 HOT POUR CRACK SEALANT

- A. Shall be supplied in solid blocks comprised of heat stabilized polymers and asphalt.
- B. Meeting the following material requirements when tested in accordance with ASTM D5167, ASTM D5249, ASTM D5329, ASTM D5-97, and ASTM D36-95. (see chart below)

Chemical & Physical Analysis

Recommended Application temperature:	390-410°F
Maximum Heating Temperature:	450°F
Penetration (150gr/5 sec.):	40
Cone Penetration at 25 degrees C:	90 max.
Flow at 60 degrees C, mm:	3 max.
Softening Point:	205°F min.
Resiliency %:	60% min.
Bond 0 degrees F:	(1" Mandrel)-Pass
Bond, non-immersed, Passed 3 cycles:	50% ext. at -29°C

Specific Gravity:

1.02

Asphalt Compatibility:

Passes

- C. Standard or quality shall be Crack Master Supreme as manufactured by Thorworks Industries, Inc., 800-395-7325, www.thorworks.com or approved equal.

PART 3 - EXECUTION

3.01 PREPARE SURFACE

- A. Saw cut existing asphalt pavements to contract limit line with straight, neat edge for joining with proposed asphalt pavement.
- B. Grade subgrade parallel to finished grade; roll to a smooth, even surface. There shall be no deviation in excess of 3/8" in 10 ft.
- C. Provide field quality control as described in Section 31 20 00, 1.3.
- D. Install soil stabilization fabric after subgrade has been acceptably compacted, proof rolled, and as specified by manufacturer. Including, but not limited to:
 - 1. Lay fabric in direction of construction traffic.
 - 2. Overlap fabric side to side and end to end a minimum of two (2) feet.
 - 3. Establish reasonable compaction and rut stability before using heavy or vibratory compaction equipment.

3.02 CONSTRUCT PAVEMENT GRANULAR BASE COURSE

- A. General: Course consists of placing granular base course material, in layers of specified thickness, over prepared subgrade to support a pavement course.
- B. Grade Control: Provide engineering layout per plans, 1.6, B. and grade stakes. During construction, protect grade stakes, maintain lines and grades including crown and cross-slope of each course.
- C. Placing: Place granular base material over soil stabilization fabric, on prepared subgrade in layers of uniform thickness, conforming to the asphalt pavement details on the drawings. Place granular base material in a maximum of six (6) inch layers and compact with a vibratory or 10 ton smooth wheeled roller. Provide testing as described in Section 31 20 00, 1.5.
- D. Surface Smoothness: Test finished surface for smoothness. Surface will not be acceptable when it deviates more than 3/8" measured by a ten (10) foot straightedge.

3.03 PLACE ASPHALT MIX

- A. General:
 - 1. Joints: Saw cut vertical straight, neat edges for joints required. Joints shall be sharp and clean, conforming to shapes drawn on drawings. Ragged joints will not be accepted.
 - 2. Place asphalt concrete mixture on prepared surface, spread and strike-off.
 - 3. Spread mixture at minimum temperature of 225 degrees F. Place inaccessible and small areas by hand.
 - 4. Place each course to required grade, cross-section, and compacted thickness.
- B. Pavement Placing: Compact asphalt with a nominal ten (10) ton steel wheel roller. Use of vibratory compaction equipment is not permitted. Using a self-propelled asphalt paver, place in strips not less than ten (10) feet wide, unless otherwise acceptable. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Where possible, top course shall be placed at right angles to binder course and in the direction that the drainage flows. Where this is impractical, offset joints of the two courses by a minimum of two (2) feet so upper and lower joints do not align.

- C. Paving operations shall not be scheduled when ample time does not exist to place, compact, and finish roll the hot mix asphalt during daylight hours.
- D. In placing each succeeding pass after the placement of the initial pass, the screed of the paver shall be set such that it overlaps the preceding pass by 2" and be sufficiently high such that when compacted, a smooth joint is produced. Prior to pinching the joint, the excess material shall be pushed onto the edge of the new pass with a lute. Excess material shall be removed.

3.04 ROLL ASPHALT MIX

- A. General: Begin rolling when mixture will bear roller weight without obvious or excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Finish Rolling: Perform finish rolling with ten (10) ton roller while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and the course has attained maximum density. Finished asphalt pavement shall achieve maximum density as determined by Section 403 standards and methods.
- D. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.
- E. Joints:
 - 1. Neat, straight butt joints between successive passes.
 - 2. When repairs or staging of work occurs, make neat vertical saw cut between old and new work to create butt joint.
 - 3. Apply tack coat of asphaltic emulsion to vertical joints between old and new asphalt, also at concrete gutters and the face of curbs below the reveal. Use asphaltic emulsion NYSDOT item 702-90 with 702-3401, HFMS-2h medium setting.
- F. Edges: Roll at 45 degrees as detailed, creating clean edge conforming to shapes indicated on the drawings. Ragged edges will not be accepted. Return and saw cut ragged edges at no additional cost to the Owner as directed by the Architect.
- G. When phasing delays placement of the wearing course over the binder course, thoroughly clean existing surface of dirt, oil and other debris by power washing and sweeping. If delay exceeds 90 calendar days, place asphaltic emulsion tack coat NYSDOT item 702-90 with 702-3401, HFMS-2h medium setting at the rate of 0.15-0.25 gals./sq. yd. When pavement surface temperature is above or below the 75-130 degrees F. range, the grade of emulsion must be modified according to NYSDOT standards. Tack coat shall not be applied to a wet surface or when the pavement surface temperature is below 45 degrees F.

3.05 FIELD QUALITY CONTROL

- A. General: Test the in-place courses for compliance with requirements for density, thickness and surface smoothness as described in 31 20 00, 1.5. Remove and replace unacceptable paving as directed by the Architect. Correction of deficient areas in the wearing course shall be done by sawcutting and removal of defective area of work. Tack coat shall be applied to all edges and the pavement shall be replaced. Shimming or skin patching of the wearing course shall not be permitted. Correction of deficient areas within the binder course shall be corrected by sawcutting and milling high spots, and truing and leveling low spots.
- B. Thickness and Density: In-place compacted thickness will not be acceptable when it is less than 95% of the total thickness shown on the drawings.

- C. Surface Smoothness: Test finished surface of each course for smoothness, 10' straightedge applied parallel with, and at right angles to, centerline of paved areas. Surfaces will not be acceptable when exceeding the following tolerances for smoothness:
 - 1. Base Course Surface: 3/8"
 - 2. Binder Course Surface: 1/4"
 - 3. Wearing Course Surface: 1/8"
- D. Check the surface grades and drainage patterns. Small ponding areas (bird baths) larger than two (2) feet in any dimension are not acceptable. When this test proves that surface conditions are not acceptable, the Contractor will be responsible for correcting the problem areas. Install a one (1) inch shim coat of wearing course material, or other means acceptable to the Engineer.

3.06 SURFACE PROTECTION

- A. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- B. Provide protection including, but not limited to, lights, reflective signs, flagpersons and barricades until mixture has cooled and attained its maximum degree of hardness.

3.07 PAINTED LINE MARKINGS, SHAPES, AND HANDICAP SYMBOLS

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust. Remove dirt, oils and other foreign matter.
- B. Locate to alignment and dimensions as shown on drawings.
- C. Protect: Adjacent surfaces and other items to remain with tape, drop cloths, or other Architect approved means.
- D. Application: Two (2) coats according to manufacturer's recommendations resulting in a dense, opaque application without any pavement showing through. Overspraying along edges will not be accepted. Edges shall be sharp and crisp, to the shapes required by the drawings.
- E. Allow 48 hours minimum curing time for paint before allowing traffic on surfaces. Clean up thoroughly including all protective tape, spilled paint, and debris.

3.08 HOT POUR CRACK SEALANT

- A. The crack must be free from moisture, dust, and loose aggregate. Routing or wire brushing are preferred methods followed by a compressed air heat lance immediately prior to sealing. The substrate and air temperature must be above 40°F.
- B. Shall be melted in direct fired or oil jacketed melters. Material should reach recommended pouring temperature of 390-410°F.
- C. Apply heated crack filler using either a pump and wand system or a pour pot. For best results the sealant depth to width ratio should not exceed 2 to 1 (i.e. 2-inches deep to 1-inch wide). The cooled sealant height should not exceed 1/8" above surrounding pavement. Using a sealing shoe or squeegee, band the material 2 to 3 inches wide over the crack.

3.09 CLEAN UP

- A. During the contract, and at intervals as directed by the Architect, and as asphalt paving is completed, clear the site of extraneous fabric, gravel, asphalt and debris. Leave the site in a clean, safe, well draining, neat condition.

END OF SECTION 32 12 16

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SECTION 32 92 00 - TURF AND GRASSES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of the lawn work is shown on the drawings. The lawn work limits equal the Contract Limit Line except as noted on the drawings. Non-paved, non-roofed areas within the Contract Limit Line shall receive four (4") inches settled depth of topsoil and seed. Existing lawn areas that are not disturbed require no additional work.
- B. Lawn work includes, but is not limited to, the following:
 - 1. Placing and spreading stockpiled topsoil
 - 2. Importing, placing and spreading topsoil
 - 3. Seed bed preparation
 - 4. Fertilizing
 - 5. Maintenance
 - 6. Clean Up
- C. Provide materials, labor, equipment, and services required to accomplish related work in accordance with the drawings and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 31 - Earthwork
- B. Division 32 - Exterior Improvements

1.03 SUBMITTALS: (SEE SECTION 01 30 00)

- A. Provide Material Certificates and MPD for:
 - 1. Seed species and source
 - 2. Limestone
 - 3. Fertilizers
- B. Provide Topsoil Test Report: Submit test results from Architect approved independent testing laboratory on their letterhead. Report shall:
 - 1. Certify soil texture and content, pH value, sieve and nutrient analysis.
 - 2. Provide specific recommendations on liming and fertilizing (nitrogen, phosphate, and potash).
- C. Schedule: Prior to construction, provide a schedule which addresses the following lawn thresholds involving erosion control stabilization.
 - 1. Final Acceptance: The Contractor may invoice for the final 50% of the approved schedule of value breakdown at the time of final acceptance.

1.04 QUALITY ASSURANCE

- A. Seed Standards: Comply with US Dept of Agriculture Rules and Regulations under Federal Seed Act.
- B. Delivery, Storage, and Handling: Deliver fertilizer and other materials in original unopened containers clearly showing weight, analysis by weight and name of manufacturer. Store in cool, dry place in a manner to prevent wetting and deterioration.

1.05 JOB CONDITIONS

- A. Job conditions in Section 01 89 00 apply.
- B. Seeding
 - 1. Unless otherwise directed in writing by the Architect, seed lawns from March 15 to May 15 and August 15 to November 1. Seeding between May 16 and August 14 is not acceptable unless adequate water supply is available.

2. Provide meters, labor, hoses, sprinklers and watering equipment. The Owner will provide water at the hydrants.
- C. Construction Review: Upon completion of topsoil spreading and seed bed preparation, notify Architect to review work.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Source: Provide from off site, Architect approved source, when stripped and stockpiled quantity is inadequate to provide four (4) inches settled depth of topsoil for lawn areas at no additional cost to the Owner.
- B. Texture and Content: Provide topsoil conforming to the following:
 1. Soil texture and content:
 - a. Sandy loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material. Topsoil shall be entirely free of dense material, hardpan, clay, stones over 3/4" in diameter, seed, or any other objectionable foreign material, including but not limited to, glass, debris, toxins, hazardous wastes and chemicals (such as atrazine or muriatic acid) that may be injurious to humans, animals and plant materials.
 - b. Organic Matter: Containing not less than 5% or more than 10% organic matter in that portion of a sample passing a 1/4" sieve when determined by the wet combustion method on a sample dried at 105 degrees C.
 2. pH Value: Containing a pH value within the range of 6.5 to 7.5 on that portion of the sample which passes a 1/4" sieve.
 3. Soluble salt content: Not higher than 500 parts per million.
 4. Sieve Analysis: Shall be screened or rock picked to meet the following gradation:

Sieve Designation	% Passing
3/4"	100
1/4"	97-100
No. 200	20-65 (of the 1/4" sieve)

2.02 LIMESTONE

- A. Shall be ground limestone in the producer's standard bags containing not less than 85% total carbonates and conforming to the following gradations:

Sieve Designation	% Passing
No. 100	50-100
No. 20	100

2.03 FERTILIZER

- A. For Starter Fertilization: Immediately prior to seeding, fertilize with a commercial starter fertilizer, granular, non-burning product, with not less than 50% organic slow acting, micro nutrients and 1% iron, guaranteed analysis commercial fertilizer. Fertilizer shall contain: 15% nitrogen, 24% available phosphorus and 19% water soluble potash (15-24-19). Apply at a rate of 4 lbs/1,000 sf or 175 lbs/acre.
- B. For Subsequent and Final Fertilizations: Apply commercial fertilizer, granular non-burning product with not less than 50% organic slow acting, guaranteed analysis
 1. For Spring Lawn Work: Fertilizer shall contain: 10% nitrogen, 6% available phosphorus, and 4% water soluble potash (10-6-4). Apply at rate of 10 lbs/1,000 s.f. or 400 lbs/acre.

2. For Fall Lawn Work: Fertilizer shall contain: 5% nitrogen, 10% available phosphorus, and 5% water soluble potash (5-10-5). Apply at rate of 10 lbs/1,000 s.f. or 400 lbs/acre.

2.04 WATER

- A. Free of substance harmful to lawn, other plants, humans and animals.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify limits of lawn and other types of ground cover materials in the field with drawings. Also any imported and screened topsoil areas. Notify Architect of discrepancies prior to proceeding with lawn work.
- B. Examine finish surfaces, grade, topsoil quality, and depth.
- C. Do not start lawn work until unsatisfactory conditions are corrected.

3.02 SPREAD TOPSOIL

- A. Limit preparation to areas which will be immediately seeded.
- B. Perform topsoil spreading operations only during dry weather.
- C. To insure a proper bond with the topsoil, disc, harrow, or otherwise scarify and loosen the lawn subgrade to a depth of four (4) inches before spreading topsoil.
- D. Spread topsoil to ensure a minimum settled depth of four (4) inches in lawn areas.

3.03 PREPARE LAWN AREAS

- A. Perform a pH test, sieve, and nutrient analysis of the topsoil and advise the results to the Architect prior to adding limestone or other soil amendments.
- B. Remove debris. Remove stone 3/4" or larger by handpicking, fine tooth aluminum grading rakes, and/or mechanized stone picker. When topsoil has hardened, cultivate soil to a four (4) inch depth by plowing, discing, harrowing, or otherwise scarifying and loosening the topsoil.
- C. Grade lawn areas to a smooth, free draining even surface with a loose, moderately coarse texture. Roll, scarify, rake, and level as necessary to obtain true, even lawn surfaces and fill depressions as required to drain. Correct irregularities in the surface resulting from tillage operations to prevent formation of depressions or water pockets.
- D. Cultivate soil to provide a firm bed of minimum of four (4) inches deep, free of clods, stones, or foreign matter over two (2) inches in diameter from the top of soil. Do not move heavy objects except necessary lawn making equipment over the lawn areas after the soil is prepared unless it is again loosened and graded. Remove stones greater than one 3/4" in diameter during cultivation. Level undulations and irregularities in the surface.
 1. Provide adjusted rate of application as recommended in Topsoil Test Report submittal (Section 02 80 00, 1.3, C.2) when rate differs from the following: Add ground limestone at the rate of 100 lbs. per 1,000 S.F. or equivalent acidifier as directed by the Architect.
- E. Place starter fertilizer at the rate of 4 lbs. per 1,000 S.F. and mix into full depth of topsoil.
- F. Rake area with fine toothed aluminum grading rake before placing seed to obtain a smooth surface at the proper elevation. Drag area with a wood float to level out minor humps and hollows. Beds shall have a smooth friable uniform surface, free of areas ponding water.

3.04 SEEDING

- A. Notify Architect that seed bed is ready for review as specified in Job Conditions. Obtain Architect's approval prior to seeding.

3.05 MAINTENANCE

- A. Maintenance by Contractor begins as soon as lawns are seeded. Protect lawns from drought, washout and wind erosion. In general, maintain new installed lawn areas, including watering, fertilizing, core aerating, spot weeding, mowing, applications of herbicides, fungicides, insecticides, and re-seeding until a full, uniform, healthy, vigorous stand of grass free of weed, undesirable grass species, disease, and insects is achieved and accepted by the Architect. Specifically:
1. Watering Seeded Lawns:
 - a. First Week: Provide meters, labor, hoses, sprinklers and watering equipment for rooting of the seed. The Owner will provide water at the hydrants. Soil on seed pads shall be kept moist. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least four (4) inches. Lawn areas shall receive a minimum of one (1) inch of water per week, by natural rainfall, irrigation or a combination both.
 - b. Second and Subsequent Weeks: Provide meters, labor, hoses, sprinklers and watering equipment as required to maintain adequate moisture, in the upper four (4) inches of soil, necessary for the promotion of deep root growth until final acceptance. The Owner will provide water at the hydrants. Lawn areas shall receive a minimum of one (1) inch of water per week, by natural rainfall, irrigation or a combination both.
 2. Protect: Protect lawn areas against trespass, vandalism, and routine pedestrian traffic by temporary fencing or other means.
 3. Repair: Repair, rework, and reseed areas that have washed out, eroded, do not germinate, and are vandalized or otherwise damaged.
 4. Mow: Initial mowing shall begin when the blade height reaches 2" and the soil will bear the weight of the lawn mower. Use mowers with low impact tires. For the first three (3) mowings cut the grass blades to 1.5 inches. After that mow the grass when it reaches a height of about 3.5" to a height of about 2.5". Never remove more than 1/3 of the grass blade at any one (1) mowing. A minimum of five (5) mowings are required (approximately once per week to ten (10) days after the initial germination period to final acceptance). Notify the Architect of dates in writing as mowing is performed. Excess clippings shall be carefully raked so as not to remove healthy grasses, and removed.
 5. Core Aerating: Between mowings three (3) and four (4), core aerate lawns about three (3) inches on center minimum three (3) inches deep to ensure aggressive root growth. This will require multiple passes at different directions to achieve 16 to 20 holes 3/4" to 1" diameter per square foot. Sweep scattered plugs off paved areas onto adjacent lawn areas. Pulverize plugs during subsequent mowing operations. Moisten field by thoroughly watering the topsoil profile, several days in advance of coring to facilitate proper penetration of the topsoil.
 6. Fertilizer: Immediately after core aerating, between mowings three (3) and four (4), apply subsequent fertilizer at the rate of 10 lb./1,000 s.f. Apply a final fertilizer just prior to final acceptance at the same application rate.
 7. Weed Control: When infestation of weeds or crabgrass develops, treat infestation by hand weeding or herbicides control appropriate to the area. Furnish and install weed chemical control as recommended by manufacturer. Herbicides controls must be acceptable to the Owner. Obtain and pay for permits. Use as directed by the manufacturer and applicable laws, codes, ordinances and regulatory requirements.

- B. Maintenance by the Contractor continues to final acceptance by the Architect as described below. Maintenance by Owner begins after final acceptance of the lawn.

3.06 STANDARDS FOR FINAL ACCEPTANCE OF LAWNS:

- A. Review to determine final acceptance of lawns will be made by the Architect, upon request. Provide notification at least five (5) working days before requested review date.
- B. Lawn areas will be acceptable provided requirements, including maintenance, have been complied with. A healthy, vigorous, uniform, full stand of lawn is established free of weeds, undesirable grass species, disease, and insects. Grass roots shall have matured to a minimum of 1½" to 2" depth as determined by the Architect when core samples are taken.
- C. Any lawn which contains disease, more than 2% dead/bare spots, or any dead/bare area greater than one square foot shall be rejected and the unacceptable area(s) repaired as originally specified at no additional cost to the Owner.

3.07 CLEAN UP

- A. During the contract and at intervals as directed by the Architect and as lawn work is completed, clear the site of extraneous materials, rubbish, and debris. Leave the site in a clean, safe, neat, well-draining condition.

END OF SECTION 32 92 00

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SECTION 33 11 00 - WATER DISTRIBUTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of the water distribution system is shown on the drawings. Remove existing water service where shown or abandon and cap ends watertight with concrete.
- B. The water distribution work includes, but is not limited to, the following:
 - 1. Trenching and Backfilling
 - 2. Piping and jointing to five feet from exterior building face
 - 3. Connections to existing water system
 - 4. Valves & Valve Boxes
 - 5. Concrete Thrust Blocks
 - 6. Clean Up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- 1. Section 31 20 00 – Earth Moving
- 2. Section 32 05 23 - Concrete Site Work
- 3. Section 33 13 00 – Disinfection of Water System
- 4. Section 33 30 00 - Sanitary Sewerage Utilities
- 5. Section 33 40 00 – Storm Drainage Utilities

1.03 SUBMITTALS: (SEE SECTION 01 30 00)

- A. Provide Material Certificates and samples as noted:
 - 1. Granular Backfill: Material Certificates and sample.
 - 2. 4000 psi concrete: Material Certificate showing design mixes.
- B. Permits, Notification, Certification, and Test Reports: Provide per 1.04.

1.04 JOB CONDITIONS

- A. Water distribution work shall conform to standards of applicable government authorities having jurisdiction.
- B. Obtain and pay for permits and approvals required by local authorities. Copy permit to Engineer.
- C. Notify City Engineer in writing two (2 weeks) weeks prior to start of work. Copy letter to Engineer.

1.05 QUALITY ASSURANCE FOR CONCRETE

- A. Codes and Standards: ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete", comply with applicable provisions except as otherwise indicated.

1.06 TESTING

- A. Notify City Engineer a minimum of forty-eight (48 hrs.) hours in advance. Coordinate with the City flow and pressure tests before and after construction. Obtain written approval from the City prior to final acceptance.
- B. Provide materials and labor to carry out testing in the presence of the Architect and Municipal Engineer. Test water system with an hydrostatic pressure test for two hours in conformance with AWWA Standard C600.
 - 1. Do not exceed the following leakage rates per 1000 feet of pipe, respectively, for the two hour test period at 150 psi:

<u>PIPE DIAMETER</u>	<u>ALLOWABLE LEAKAGE</u>
3/4 INCH	0.124 GAL.
1 INCH	0.165 GAL.
1-1/2 INCH	0.248 GAL.
2 INCH	0.331 GAL.
2-1/2 INCH	0.414 GAL.
4 INCH	0.662 GAL.
6 INCH	0.993 GAL.
8 INCH	1.324 GAL.
10 INCH	1.655 GAL.
12 INCH	1.986 GAL.

1. Valid test pressure shall not vary more than (+/-) 5 psi.
2. Any leakage beyond limits described shall be located and repaired. Retest system to insure adequate performance of pipe.

PART 2 - PRODUCTS

2.01 PIPING, FITTINGS AND BACKFILL

- A. Ductile iron pipe shall be Tyton Joint, pressure class 350, double cement lined, bituminous coated, 18'-20' lengths. Pipe shall be manufactured in full conformance with AWWA/ANSI C151/A21.51 with push joints conforming to AWWA/ANSI C111/A21.11. Match existing City standards.
- B. Copper Pipe: Two inch (2") and smaller pipe shall be Type K tempered copper pipe with flared fittings. Match existing City standards.
- C. Backfill shall be as specified in Division 01 89 00.
- D. Concrete for thrust blocks shall be 4000 psi as specified in Section 32 05 23.

2.02 GATE VALVE AND VALVE BOX

- A. Gate Valves - Open Counter-clockwise (left)
 1. Valves shall be 125 pound flanged gate valves meeting American Water Works Association (AWWA) Standards, iron body, bronze mounted, double disc type with removable brass seats, non-rising manganese bronze stems, and open counter clockwise.
 2. Valves shall be successfully subjected to a hydrostatic pressure test of not less than four (4) times the maximum working pressure.
 3. Standard of quality shall be AWWA gate valves as manufactured by Kennedy or equal approved by the local Water Authority.
 4. Valves shall be compatible with the type of pipe and joint being used without the use of an adaptor.
- B. Valve Box shall be cast iron, yoke type, adjustable for height with cast iron cover marked "Water". Boxes shall be designed for pipe in trench having a 5'-6" cover over pipe.

2.03 CONCRETE MATERIALS FOR THRUST BLOCKS

- A. Portland Cement: ASTM C 150, Type 1A.
- B. Aggregates: ASTM C33, coarse aggregate crushed limestone maximum size one inch (1"). Fine aggregate clean, sharp, natural sand.
- C. Water: Clean, drinkable.
 1. Air-Entraining Admixture: ASTM C 260, Darex or Architect approved equal.

- D. Ready Mix Concrete: ASTM C 94.
- E. Minimum Concrete Strength: Shall be 4,000 psi at 28 days; minimum cement content 6.5 bags/c.y., 4.0 gals./bag of cement; slump 1-1/2" to 3"; provide air-entraining admixture 5% to 8-1/2%; flexural strength ASTM C 78 650 psi at 28 days.

PART 3 - EXECUTION

3.01 CONNECTIONS TO OTHER WATER SYSTEMS

- A. Connections at Buildings:
 - 1. Locate accurately per site and plumbing drawings. Verify inverts and sizes. Notify Architect of any discrepancies immediately prior to installation.
 - 2. Install the site water system to within five (5') feet of each building exterior. Install temporary plugs, mark above grade, and protect. Coordinate with the Plumbing Contractor.
 - 3. The Plumbing Contractor shall be responsible for connecting the building water plumbing system to the site water system and coordinating with this Contractor.
 - 4. Make connections securely, watertight, and as detailed.
- B. Connections to the existing water supply system:
 - 1. Provide the City with at least two (2) weeks notice prior to conducting work so that field procedures and installations can be reviewed by a representative of the City. Copy letter to Engineer.
 - 2. Locate accurately per site drawings. Verify inverts and sizes. Notify Architect of any discrepancies prior to installation.
 - 3. Install wet taps (tapping sleeve), gate valve and coordinate with the City and other agencies having jurisdiction. Make the connections under pressure without disrupting service.
 - a. Make connections securely, watertight, and as detailed.

3.02 TRENCHING AND BACKFILL

- A. As specified in Division 33.

3.03 PIPE LAYING

- A. Joints to remain uncovered until testing is completed. Conduct tests in accordance with plumbing codes and local water authority.
- B. Water pipe shall have a minimum of five and one half (5- 1/2') feet of cover as measured from the top of the pipe to finish grades. Bed pipe as detailed. Place backfill around pipes to equal depths on both sides as work progresses. When pipe laying is not actually in progress, the open ends of the pipes shall be closed temporarily with pipe plugs or by other means. When water is in the trench, plugs shall not be removed until danger of water entering the pipe has passed.
- C. Compact trenches to at least ninety five (95%) percent maximum density as specified in Division 33. Settlement shall be repaired by the Contractor at no additional cost to the Owner.
- D. Install concrete cradles, saddles and thrust blocks where shown on drawings as detailed and specified in Section 02700, Part 3. Provide bracing and blocking at bends, 22-1/2 degrees or greater, tees, crosses and plugs. Block and anchor with concrete so that there will be no movement of the pipe in the joints due to internal or external pressures. The concrete shall be placed around the fittings and completely fill the space between the fittings and walls of the trench, from 6" below the fittings of pipe, to 12" above the fittings. The anchor concrete shall be so placed that the bell and spigot joints or other joints may be recaulked or tightened if necessary. Concrete thrust blocks shall conform dimensionally to details shown on drawings.

- E. Install valve boxes where shown on drawings. Set flush with finish grades.
- F. Cleaning Pipeline: At the conclusion of the work, the Contractor shall thoroughly clean new pipe by flushing with water or other means to remove silt, dirt, stones, pieces of wood, debris and undesirable materials, which may have entered during the construction period. If, after this cleaning, any obstructions remain, they shall be corrected to the satisfaction of the Engineer. Pipes shall be flushed at a rate of 2.5 feet per second for a duration suitable to remove any obstructions.
- G. Disinfection: Disinfect all water main, appurtenances, and services after pressure testing, in accordance with Section 33 13 00.

3.04 CLEAN UP

- A. During the contract and at intervals as directed by the Engineer and as the water distribution system is completed, clear the site of pipe, trench and backfill material, stone, concrete and debris. Leave the site in a clean, safe, well draining, and neat condition.

END OF SECTION 33 11 00

SECTION 33 13 00 - DISINFECTION OF WATER SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disinfection of site domestic and fire water lines and appurtenances.
- B. Testing and reporting results.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 33 11 00 - Water Distribution

1.03 REFERENCES

- A. AWWA B300 - Hypochlorites; American Water Works Association; 1992 (ANSI/AWWA B300).
- B. AWWA B301 - Liquid Chlorine; American Water Works Association; 1992 (ANSI/AWWA B301).
- C. AWWA B302 - Ammonium Sulfate; American Water Works Association; 1995 (Revised) (ANSI/AWWA B302).
- D. AWWA B303 - Sodium Chlorite; American Water Works Association; 1995 (Revised) (ANSI/AWWA B303).
- E. AWWA C651 - Disinfecting Water Mains; American Water Works Association; 1992 (ANSI/AWWA C651).

1.04 SUBMITTALS: (SEE SECTION 01 30 00)

- A. Test Reports: Indicate results comparative to specified requirements.
- B. Certificate: Certify that cleanliness of water distribution system meets or exceed specified requirements.
- C. Disinfection report:
 - 1. Type and form of disinfectant used.
 - 2. Date and time of disinfectant injection start and time of completion.
 - 3. Test locations.
 - 4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
 - 5. Date and time of flushing start and completion.
 - 6. Disinfectant residual after flushing in ppm for each outlet tested.
- D. Bacteriological report:
 - 1. Date issued, project name, and testing laboratory name, address, and telephone number.
 - 2. Time and date of water sample collection.
 - 3. Name of person collecting samples.
 - 4. Test locations.
 - 5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
 - 6. Coliform bacteria test results for each outlet tested.
 - 7. Certification that water conforms, or fails to conform, to bacterial standards of NYS Department of Health.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with AWWA C651.

1.06 REGULATORY CERTIFICATION REQUIREMENTS

- A. Provide certificate of compliance from authority having jurisdiction indicating approval of water system. Provide written certification from AHJ that water system has been tested for leakage and sterilized and disinfected in a manner satisfactory to the Health Department having jurisdiction, but in no event less stringent than that provided for in AWWA Standard for disinfecting water mains C601, latest issue. Hypochlorite and liquid chlorines used in disinfection shall conform to most recent AWWA Standards B300 and B301. Provide certification prior to Architect issuing final acceptance. No water main or pipes shall be placed into service until test results are provided documenting that the water system is bacteriologically safe.

PART 2 - PRODUCTS**2.01 DISINFECTION CHEMICALS**

- A. Chemicals: AWWA B300, Hypochlorite, AWWA B301, Liquid Chlorine, AWWA B302, Ammonium Sulfate, and AWWA B303, Sodium Chlorite.

PART 3 – EXECUTION**3.01 EXAMINATION**

- A. Verify that piping system has been cleaned, inspected, and pressure tested.
- B. Schedule disinfecting activity to coordinate with start-up, testing, adjusting and balancing, demonstration procedures, including related systems.

3.02 EXECUTION

- A. Provide specific water main taps located adjacent to ends of main and attach required equipment to perform the work of this Section.
- B. Inject treatment disinfectant along with potable water into piping system. Chlorine shall be fed at a constant metered rate into the feed water so that the chlorine concentration will result in at least 50 milligrams per liter (parts per million) concentration. Chlorine required to produce .50 mg/l concentration per 100 feet of pipe shall be as follows: 4" - 0.33 Gal. of 1% chlorine solution, 6" - 0.73 Gal. of 1% Chlorine Solution; 8" - 1.30 Gal. After filling the main pipe with chlorine solution, open each service line and hydrant branch to fill them with the same chlorine solution. Test the solution as it is withdrawn from each point until at least 50 mg/l concentration is obtained.
- C. Maintain disinfectant in system for 24 hours. Read and record chlorine residual after the 24-hour contact time; Minimum allowable level shall be 20 ppm.
- D. Flush, circulate, and clean until required cleanliness is achieved; use municipal domestic water. After flushing, take two (2) samples, one (1) from the domestic service line at its connection to the building plumbing system and one (1) from a hydrant remote from the domestic service connection. Submit these samples for bacteriological analysis. Submit test reports to the Architect. If the initial disinfection fails to produce acceptable results, the procedure shall be repeated until a satisfactory report is obtained.
- E. Temporary taps shall be excavated, shut off and abandoned following satisfactory quality test results. Replace permanent system devices removed for disinfection.

3.03 FIELD QUALITY CONTROL

- A. Test samples in accordance with AWWA C651.

3.04 CLEAN-UP

- A. As the disinfection of water system is completed, clear the site extraneous materials and debris. Leave the site in a clean, safe, well draining, neat condition.

END OF SECTION 33 13 00

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SECTION 33 30 00 - SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of Sanitary work is shown on the drawings. Remove existing sanitary where shown or abandon and cap ends watertight with concrete.
- B. Sanitary work includes, but is not limited to:
 - 1. Trenching and Backfilling
 - 2. Piping and jointing to five feet from exterior building face
 - 3. Connections to existing sanitary systems
 - 4. Cleanouts
 - 5. Clean Up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 32 05 23 –Concrete Site Work
- B. Section 33 11 00 - Water Distribution
- C. Section 33 46 00 - Storm Drainage Utilities

1.03 SUBMITTALS: (SEE SECTION 01 30 00)

- A. Provide Manufacturer's Product Data (MPD) and Shop Drawings for:
 - 1. Precast Structure (Manholes): Also, certification that structures meet H-20 loading requirements specified.
 - 2. Pipe and jointing-MPD only
 - 3. Cleanouts-MPD only
 - 4. Concrete manhole adaptors
- B. Provide Material Certificates: Also, samples as noted.
 - 1. Granular Backfill: Sample
 - 2. 4000 psi concrete
- C. Provide Permits, Test Results, and Certifications as noted below:
- D. Permit and Notification Letter: Copy of each as required in 1.04 B and C, also 3.01 B below.
 - 1. Exfiltration Test Results: As required in 1.05 below.
 - 2. Certification: As required in 1.04 D and 3.08 below.

1.04 JOB CONDITIONS

- A. Job conditions in Section 01 89 00 apply.
- B. Sewer work shall conform to standards of applicable government authorities having jurisdiction. Obtain and pay for permits and approvals required by local authorities. Copy permit to Architect.
- C. Notify City Engineer or applicable government authority having jurisdiction in writing two (2) weeks prior to start of work. Copy letter to Engineer.
- D. Certification: The sanitary system must be installed and certified by a licensed county Plumber when required by municipal or state law.

1.05 TESTING

- A. Notify City Engineer a minimum of forty-eight (48) hours in advance. Provide manuals, materials and labor to carry out testing in the presence of the City Engineer.
- B. Test sewer systems with an exfiltration test for a period of two (2) hours that meets the following requirements:

1. Gravity Systems: Do not exceed a leakage rate of 10 gallons per inch of internal pipe diameter per mile per day with minimum 2 feet head, excluding manholes.
2. When standards of government authorities having jurisdiction are different, such as allowing no leakage or requiring stricter leakage rates, conform to the stricter standards.
3. Any leakage beyond limits described shall be located and repaired. Retest pipe to insure adequate performance of pipe.

PART 2 – PRODUCTS

2.01 GRANULAR BACKFILL

- A. Refer to Section 01 89 00 for backfilling.

2.02 PIPING

- A. Sanitary pipe shall be rigid, solid PVC gravity sewer pipe conforming to ASTM D-3034, SDR 35 with rubber gasketed joints conforming to ASTM F-477.

2.03 CLEANOUTS

- A. Shall be ductile iron in paved areas. Standard of quality shall be Neenah or Architect approved equal. In non-paved areas, cleanout shall be PVC, compatible with gravity sewer pipe.

2.04 CONCRETE MATERIALS FOR STRUCTURE BASES AND PIPE CRADLES

- A. Portland Cement: ASTM C 150, Type 1A.
- B. Aggregates: ASTM C33, coarse aggregate crushed limestone maximum size one (1) inch. Fine aggregate clean, sharp, natural sand.
- C. Water: Clean, drinkable.
- D. Air-Entraining Admixture: ASTM C 260, Darex or Architect approved equal.
- E. Ready Mix Concrete: ASTM C 94.
- F. Minimum Concrete Strength: Shall be 4000 psi at 28 days; minimum cement content 6.5 bags/c.y., 4.0 gals./bag of cement; slump 1-1/2" to 3" provide air-entraining admixture 5-8-1/2%; flexural strength ASTM C 78 650 psi at 28 days.

PART 3 - EXECUTION

3.01 CONNECTIONS TO OTHER SANITARY SYSTEMS

- A. Connections at Building(s):
 1. Locate accurately per site and plumbing drawings. Verify inverts and sizes. Notify Architect of any discrepancies immediately, prior to installation.
 2. Install pipe and jointing to five (5) feet from the exterior building face.
 3. Cap end and mark.
 4. Connection will be made by the Plumbing Contractor.
- B. Connections to existing Sanitary Systems:
 1. Locate accurately per drawings. Verify inverts and sizes. Notify Engineer of any discrepancies immediately, prior to installation. Coordinate with the Municipality and other agencies having jurisdiction.
 2. Notify governing agency in writing a minimum of two (2) weeks prior to anticipated date of connection. Copy letter to Engineer.
 3. Connect the site sanitary system to the existing sanitary system. Make connections securely, watertight and as detailed.

3.02 TRENCHING AND BACKFILL

- A. Reference: Refer to Section 01 89 00 for backfilling.
- B. Trenching:

1. Remove material encountered to the depth shown on drawings and with a maximum width of twelve (12) inches and a minimum of three (3) inches each side of conduit as detailed. Provide safe shoring, sheeting, and bracing. Remove before backfilling. Backfill excess excavation with sand or gravel to proper grade and thoroughly tamp.
2. When unsatisfactory soil materials are encountered at design elevations, immediately notify the Engineer in writing via facsimile (585-325-1691). Continue as directed by the Engineer. When conditions are not a result of Contractor's negligence, additional excavation may be directed by the Architect and paid for as a Change Order on a unit price basis in accordance with Contract Documents.

3.03 MASONRY

- A. Mortaring: Thoroughly wet brick before laying. Mortar joints. Joints shall be completely full and struck flush.
- B. Pre-Cast Structures: Install with precast base section or a built-up base of concrete brick as detailed. Precast base units shall be modified in the factory to have the correct size openings for piping.
- C. Provide sanitary structures as detailed, built to finished grades given. Backfill with granular backfill material around drainage structure and compact to 95% density to avoid settlement. See masonry details for installation of casting. Install any required steps in a continuous flight, avoiding any conflict with piping. Construct channels in base of storm structures for positive flow from inlet to outlet piping where detailed. Build completed structure to avoid any infiltration or exfiltration of water.

3.04 CASTINGS

- A. Provide the type specified and shown on drawings. Build to the finish grade as shown on drawings.
- B. Set castings firmly. Loose or rocking castings shall be rejected by the Architect.

3.05 PIPE LAYING

- A. Bed pipe in granular backfill or concrete as shown on drawings, compact under springline of pipe to assure firm support. Align pipe to line and grade given in plan and profile. Set batter boards or set by laser level.
- B. Place backfill around pipes to equal depths on both sides as work progresses. Compact trenches to at least ninety-five (95) percent maximum density as specified in Division 33.
- C. Install pipe, fittings, and accessories in accordance with ANSI C600 and manufacturer's instructions. Pipe push type joints shall be made using the flexible gaskets specified. Push together pipes so that the gasket is firmly seated in the socket.
- D. "Lamp" pipes to check for misalignment and breakage after backfilling has been completed. Replace pipes deviating more than 1/2" from line or grade at no additional cost to the Owner.
- E. Concrete saddles: Refer to Division 33 05 23.
- F. Conduct testing as described in 1.5 above.

3.06 CLEANOUT

- A. Install as detailed. Construct flush with finished grade.

3.07 PROVIDE CERTIFICATION

- A. Provide written certification from the City Engineer that the sanitary work in the public right of way has been installed in a manner satisfactory to the governing agency having jurisdiction over the work. Provide certification prior to Architect issuing final acceptance.

3.08 CLEAN UP

- A. During the contract and at intervals as directed by the Architect and backfill material, stone, concrete and debris. Leave the site in a clean, safe, well draining, and neat condition.

END OF SECTION 33 30 00

SECTION 33 40 00 - STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of the storm drainage is shown on the drawings.
- B. Storm drainage work includes, but is not limited to:
 - 1. Trenching and backfilling
 - 2. Storm structures (ie: Storm inlet, Curb inlet, Storm manhole, and Area drains)
 - 3. Adjusting existing storm structures and other utilities
 - 4. Connection(s) to other storm system(s)
 - 5. Clean Up
- C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 31 - Earthwork
- B. Division 32 - Exterior Improvements
- C. Division 33 - Utilities

1.03 SUBMITTALS

- A. Material Certificates showing content/mechanical analysis and Samples required for:
 - 1. Granular Backfill
 - 2. Storm Water Management Trench for Pipe Backfill
 - 3. 4,000 psi concrete (See Section 32 05 23): Material certificate only

1.04 JOB CONDITIONS

- A. Job conditions in Section 01 89 00 apply.
- B. Do not install concrete when the temperature of the outside air is below 40 degrees F. and falling unless suitable means acceptable to the Architect are provided to protect work from cold and frost and ensure that mortar and concrete will cure without freezing.
- C. Comply with International Masonry Industry All-Weather Council cold weather construction and protection recommendations and American Concrete Institute 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
- D. Plan and execute piping work so that trenches are not opened for more than two hundred (200) feet in advance or left unfilled more than one hundred (100) feet behind. No overnight open excavation is permitted.
- E. CERTIFICATION OF STORM SYSTEM: The storm system must be installed and certified by a licensed County Plumber when required by municipal code or state law.

PART 2 - PRODUCTS

2.01 GRANULAR BACKFILL

- A. Backfill for piping and drainage structures shall be as specified in Division 33.

2.02 STORM STRUCTURES

- A. Storm Inlets and Manholes: Shall be pre-cast concrete conforming to ASTM-478-02a. Size(s) as shown on drawings. Provide HS20 loading and bike safe grates, ductile iron meeting grade 60-40-12 as determined by ASTM A536-80, as noted on the plans. Openings shall be pre-cast in each unit at the factory. Ring joints shall be mortar or O-ring rubber gasket type. Storm Inlets may also be built of concrete brick meeting ASTM C140-02a.

2.03 STORM STRUCTURE APPURTENANCES

- A. Castings: Ductile iron shall conform to ASTM A536-80, Grade 60-40-18. Frames, covers and grates shall be machined to prohibit rocking. Standard of Quality shall be Neenah, Syracuse Castings, East Jordan Iron Works, or Architect approved equal. Refer to drainage details on drawings for model numbers and other information on castings.
- B. Concrete Brick: Brick for masonry shall meet ASTM C-140-02a and NYSDOT 704.02, with a minimum compressive strength of 2500 psi.
- C. Steps: Shall be copolymer polypropylene plastic reinforced with 1/2" diameter grade 60 steel as manufactured by M.A. Industries or Architect approved equal.

2.04 PIPING

- A. Storm pipe shall be rigid, solid (non-perforated) HDPE Gravity Sewer Pipe conforming to AASHTO M294 Type SORSP.

2.05 CONCRETE MATERIALS

- A. As specified in Section 32 05 23.

2.06 MORTAR

- A. Shall be lime, cement and clean sand, 1:1:3 measured by volume.

2.07 STORM WATER MANAGEMENT TRENCH

- A. Storm Perforated Pipe shall be perforated heavy duty polyethylene (HDPE) pipe with a smooth inner wall, "n" flow rating of 0.010 to 0.012, and HS-20 loading capability with minimum one (1) foot cover. Pipe shall meet the requirements for Type SORSP pipe under AASHTO M294. Joint couplings for 4" to 24" diameter pipe shall be thermal molded PVC double bell with O-ring gasket and ASTM D3212 joint tested at 10.8 psi. Standard of quality shall be N-12 and N-12HC pipe as manufactured by Advanced Drainage Systems, Inc., 214-457-3051, Hancor Hi-Q as manufactured by Hancor, 419-422-6521, or Engineer approved equal.

- B. Backfill: As detailed on drawings. Shall be No. 1 stone meeting the following requirements:

No.1 Stone <u>Standard Sieve Size</u>	Percent Passing <u>by Weight</u>
1 inch	100
1/2 inch	90 - 100
1/4 inch	0 - 15

- C. Soil Separation Fabric: Shall be a commercially manufactured non- woven polypropylene filter fabric. Standard of quality shall be Mirafi 140 as manufactured by NICOLON/MIRAFI GROUP, or Engineer approved equal.

- D. Temporary Protection:

- 1. 1A stone meeting the following requirements:

No. 1A Stone <u>Standard Sieve Size</u>	Percent Passing <u>by Weight</u>
1/2 inch	100
1/4 inch	90 - 100
1/8 inch	0 - 15
No. 200 Sieve	0 - 10

2. Filter Fabric: Shall be highly porous, commercially manufactured polypropylene geotextile. Standard of quality shall be Mirafi 100X, Exxon GTF-1035 or Engineer approved equal.

PART 3 - EXECUTION

3.01 CONNECTIONS TO OTHER STORM SYSTEM

- A. Coordinate with the Municipality and other agencies having jurisdiction. Notify governing agency in writing a minimum of two (2) weeks prior to anticipated date of connection so that field procedures and installation can be reviewed by a representative of the Municipality. Copy letter to Engineer.
- B. Locate accurately per drawings. Verify inverts and sizes. Notify Engineer of any discrepancies immediately, prior to installation.
- C. Make connections securely, watertight and as detailed.

3.02 TRENCHING AND BACKFILL

- A. Reference: Refer to Section 01 89 00 for backfilling.
- B. Trenching:
 1. Remove material encountered to the depth shown on drawings and with a maximum width of twelve (12) inches and a minimum of three (3) inches each side of conduit as detailed. Provide safe shoring, sheeting, and bracing. Remove before backfilling. Backfill excess excavation with sand or gravel to proper grade and thoroughly tamp.
 2. When unsatisfactory soil materials are encountered at design elevations, immediately notify the Engineer in writing via facsimile (585-325-1691). Continue as directed by the Engineer. When conditions are not a result of Contractor's negligence, additional excavation may be directed by the Architect and paid for as a Change Order on a unit price basis in accordance with Contract Documents.
- C. Water: Remove from trenches; drain trenches or provide pumping equipment as necessary to keep trenches dry.
- D. Soft Material in Trench Bottom: Remove and replace with granular backfill material to achieve firm foundation.
- E. Rock: Remove boulders and rock within six inches of pipe. Provide six (6) inches of underdrain backfill between rock and conduits.
- F. Backfill: Conform to details on plan, provide where required. Compact backfill to at minimum 95% of optimum density.

3.03 MASONRY

- A. Mortaring: Thoroughly wet brick before laying. Mortar joints. Joints shall be completely full and struck flush.
- B. Pre-Cast Structures: Install with precast base section or a built-up base of concrete brick as detailed. Precast base units shall be modified in the factory to have the correct size openings for piping.
- C. Provide drainage structures as detailed, built to finished grades given. Backfill with granular backfill material around drainage structure and compact to 95% density to avoid settlement. See masonry details for installation of casting. Install any required steps in a continuous flight, avoiding any conflict with piping. Construct channels in base of storm structures for positive flow from inlet to outlet piping where detailed. Build completed structure to avoid any infiltration or exfiltration of water except at underdrains or storm water management trenches.

3.04 CASTINGS

- A. Provide the type specified and shown on drawings. Build to the finish grade as shown on drawings.
- B. Set castings firmly. Loose or rocking castings shall be rejected by the Architect.

3.05 ADJUSTING EXISTING UTILITIES

- A. Adjust existing utilities as necessary to maintain utility service and meet finished grade conditions. Existing utilities include but are not limited to; hydrants, water valves, gas valves, electric pull boxes and manholes, storm drainage structures, cable and telephone markers, fiber optic cables, sanitary cleanouts and manholes, and guy wires.

3.06 PIPE LAYING

- A. Bed pipe in granular backfill or concrete as shown on drawings, compact under springline of pipe to assure firm support. Align pipe to line and grade given in plan and profile. Set batter boards or set by laser level.
- B. SDR 35 pipe joints shall be made using the flexible gaskets specified. Push together pipes so that the gasket is firmly seated in the socket.
- C. Place backfill around pipes to equal depths on both sides as work progresses.
- D. "Lamp" pipes to check for misalignment and breakage after backfilling has been completed. Replace pipes deviating more than 1/2" from line or grade at no additional cost to the Owner.

3.07 CONCRETE CRADLES, SADDLES, AND COLLARS

- A. As specified in Section 32 05 23.

3.08 AREA DRAINS

- A. Install as detailed.
- B. Construct flush with finished grade.

3.09 CLEAN UP

- A. During the contract and at intervals as directed by the Architect and as storm drainage is completed, clear the site of pipe, trench and backfill material, stone, concrete and debris. Leave the site in a clean, safe, well draining, neat condition.
- B. Clean drainage structures, storm water management trenches and pipes: Clean out sediment, rubbish, construction debris, and foreign objects thoroughly, immediately prior to final acceptance.

END OF SECTION 33 40 00