PROJECT MANUAL

FOR

WISHCAMPER PARKING LOT PROJECT 2019-022

at

UNIVERSITY OF SOUTHERN MAINE
PORTLAND, MAINE

Prepared by:

Woodard & Curran
January 30, 2020
Sealed Bids in envelopes plainly marked: **WISHCAMPER PARKING LOT PROJECT 2019-022**

addressed to: University of Southern Maine  
c/o John Souther  
Executive Director of Facilities Management  
25 Bedford St.  
Portland, ME 04104

will be received until **2:00 PM on TUESDAY, FEBRUARY 25, 2020** at which time the Bids will be opened and read aloud in **25 BEDFORD ST., PORTLAND, ME**. Bids received after the stated time will not be considered and will be returned unopened.

Bids must be accompanied by a satisfactory Bid Bond for 5% of the Bid (checks will not be accepted) which shall be in conformity with the form of Bond contained in Section 00 43 13 of the Specifications. The University reserves the right to waive all formalities and reject any or all bids or to accept any bids.

The successful Bidder will be required to furnish a 100% Performance Bond and a 100% Payment Bond to cover the execution of the Contract which shall be in conformity with the form of Bonds contained in Sections 00 61 13.13 and 00 61 13.16, respectively, of the Specifications and shall be for the Contract amount.

All Bidders must attend a MANDATORY pre-bid meeting at 25 Bedford St., Portland, University of Southern Maine, on **TUESDAY, FEBRUARY 11, 2020 at 10:00 AM**. Attendance at this meeting by Bidders or qualified representative is a mandatory prerequisite for the acceptance of a bid. Copies of plans and specifications will not be available at the pre-bid meeting. Acquiring or reviewing plans and specifications prior to the meeting is advised.

Project Summary: Provide materials, labor, equipment, services and supervision to construct a new parking lot of approx. 65,000 sf, and 183 spots. Work includes removal of existing pavement, lighting and utilities. New Work includes asphalt paving, porous pavement, lighting, stormwater treatment, pavement striping, granite curbing, utility work, and landscaping.

The electronic documents (.pdf) may be obtained from Joe Gallant, joseph.gallant@maine.edu, (207) 780-4742.

In complying with the letter and spirit of applicable laws and pursuing its own goal of diversity, the University of Maine System shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, including transgender status or gender expression, national origin, citizenship status, age, disability, genetic information, or veterans status in employment, education, and all other areas of the University System. The University provides reasonable accommodations to qualified individuals with disabilities upon request. General contractors, subcontractors, and product suppliers bidding on this project must subscribe and adhere to same.

UNIVERSITY OF SOUTHERN MAINE  
John Souther, for  
University of Maine System Board of Trustees

END OF SECTION 00 11 13
1. At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents, including all addenda. The failure or omission of any bidder to receive or examine any form, instrument, or document shall not relieve any bidder from any obligation in respect to the bid. The Owner reserves the right to accept or reject any or all bids as may best serve the interests of the University of Maine System.

2. Subject to the University System’s right, reserved herein, to accept or reject any or all bids, the General Contractor will be selected on the basis of the sum of the lowest base bid, plus such of the alternates as the University System desires to use.

3. The University System is exempt from the payment of Federal Excise Taxes on articles not for resale and the Federal Transportation Tax on all shipments. The Contractor shall quote less these taxes. Upon application, exemption certificates will be furnished when required.

4. No proposal may be withdrawn during a period of thirty (30) calendar days immediately following the opening thereof.

5. No contract may be assigned, sublet or transferred without the written consent of the University of Maine System.

6. All individuals not residents of this State must comply with the provisions of 14 MRSA §704-A.

7. The successful bidder, or bidders, will be required to furnish 100% Contract Bonds to cover the execution of the contract, in accordance with Article 11 of the AIA Document A201 – 2017 General Conditions of the Contract for Construction.

8. Contractors may be required to furnish a statement of their business experience, record of accomplishments, and financial responsibility, at the discretion of the University System.

9. The base bid shall be based on the materials, methods, equipment and products, as specified.

10. Bidders shall submit the bid on the Bid Form provided in the Specifications, Section 00 41 13.

11. Any materials, methods, equipment and products not herein specified, but worthy of consideration by any General or Subcontractor, may be introduced by a separate letter attached to the regular bid. The Bidder shall state the cost comparison with the specified materials, methods, equipment and products, and the reason for the suggested substitution. It shall be understood by all bidders that the attached letter proposing substitutions shall not be used to determine the low bidder and that all bids are based on specified products.

12. Proposals received by facsimile or other electronic transmission will not be considered, but modification of proposals already submitted will be considered if received prior to the hour set for receipt of proposals. If the transmission discloses the amount of the proposal, the proposal will be declared invalid. The bidder bears full responsibility to assure that the correction is delivered to the proper location and within the time required.

13. Where a bidder wishes a product to be considered an “approved equal” for bidding purposes, the product, along with all supporting documentation, shall be submitted to the architect for review a minimum of 10 calendar days prior to the bid opening date or the file bid due date, if file bids are required on the project. Products which are determined to be an “approved equal” for bidding purposes shall be listed in an addendum issued so as to be received by bidders no less than 72 hours prior to the bid date or the file bid due date if file bids are required.

14. Where the Bid Form requires the tabulation of subcontractors other than “File Bidders,” the Bidder shall list the name of the firm the bidder intends to use in the event the bidder receives the contract award.
15. Scholarships, donations or gifts to the University, will not be considered in the evaluation of responses.

16. Bidders may appeal the award decision by submitting a written protest to the University of Maine System Director of Facilities within five (5) business days of the date of the award notice (Notice of Award) with a copy of the protest to the successful bidder. The protest must contain a statement of the basis for the challenge.

END OF SECTION 00 21 13
Bid Form

BIDDER: _____________________________________
_____________________________________
_____________________________________
University of Maine, UNIVERSITY OF SOUTHERN MAINE
c/o JOHN M. SOUTHER, Executive Director of Facilities Management
25 Bedford Street, Portland, ME  04104-9300

Having carefully examined the form of contract, general conditions and plans and specifications
contained therein for the WISHCAMPER PARKING LOT PROJECT 2019-022, as well as the
premises and conditions affecting the work, we the undersigned propose to furnish all labor, equipment
and materials necessary for and reasonably incidental to the construction and completion of this contract
for the sum of _________________________________________ Dollars
($_________________   ).

Alternate Prices as follows:  Alternate No. 1 ____________  Alternate No. 2 ______________

Unit Prices as follows:   Unit Price No. 1 ______________
                      Unit Price No. 2 ______________
                      Unit Price No. 3 ______________

This proposal includes the cost of 100% Performance Bond plus 100% Payment Bond.

The receipt of the following addenda to plans and specifications is hereby acknowledged:

ADDENDUM # _______ DATED _______  ADDENDUM # _______ DATED _______

Any material or materials not specified in the bidding document but worthy of consideration may be
introduced by the bidder by a separate letter attached to this Proposal. A cost comparison must be
included giving the comparison with the Material specified and reason for suggested substitution. The
basic bid shall be as specified.

The undersigned agrees, if this bid is accepted, to sign a contract and deliver it, along with the bonds and
affidavits for all insurance specified within twelve (12) calendar days after the date of notification of such
acceptance, except if the 12th day falls on a Saturday, Sunday or holiday, then the conditions will be
fulfilled if the required documents are received before 12 o’clock noon on the day following the holiday,
or the Monday following the Saturday or Sunday, and as a guarantee thereof, herewith submits a bid bond
as required.

The undersigned agrees, if awarded the Contract, to complete the work on or before AUGUST 14, 2020.
The undersigned also agrees, if awarded the Contract, that no more than 80% of contract amount will be
sublet to other contractors.

Signed   ________________________________________
By   ________________________________________
Address  ________________________________________
Date   ________________________________________
NOTE: If bidder is a corporation, write State of Incorporation, and if partnership, give full names of all partners.
**Bid Security Form**

KNOW ALL BY THESE PRESENTS, THAT WE, the undersigned, as PRINCIPAL _____ and _____ as SURETY, are hereby held and firmly bound unto the Treasurer of the UNIVERSITY OF MAINE SYSTEM in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns, signed this _____ day of _____, 20___.

The condition of the above obligation is such that whereas the Principal has submitted to _____ a certain proposal, attached hereto and hereby made a part hereof, to enter into a contract in writing for the _____.

NOW THEREFORE,

(a) If said proposal shall be rejected, or, in the alternate
(b) If said proposal shall be accepted and the Principal shall execute and deliver a contract in the form of contract attached hereto (properly completed in accordance with said proposal) and shall furnish a bond for faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said proposal, then this obligation shall be void, otherwise the same shall remain in force and effect: It being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the principal may accept such proposal, further said Surety does hereby waive notice of any such extension.

In the event suit is brought upon this bond by the Treasurer of the UNIVERSITY OF MAINE SYSTEM, Surety shall pay reasonable attorneys’ fees and costs incurred by the Treasurer of the UNIVERSITY OF MAINE SYSTEM in such suit.

IN WITNESS WHEREOF, the Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set above.

________________________
PRINCIPAL

By: _______________________
    L.S.

________________________
SURETY

________________________
SURETY ADDRESS

By: _______________________
    L.S.
UNIVERSITY OF MAINE SYSTEM

Construction Contract Agreement

THIS AGREEMENT is made and entered into the _____ day of _____ 20____, by and between the Contractor * Contractor and Address * and the University of Maine System acting by and through the University of * Campus and Address *.

WITNESSETH: That the Owner and the Contractor for the considerations hereinafter named agree as follows:

ARTICLE 1. SCOPE OF THE WORK

The Contractor shall furnish all of the materials and perform all of the work described in the Contract Documents entitled ____, prepared by _____. acting as and in these Contract Documents entitled the Architect and/or Engineer.

ARTICLE 2: START AND TIME OF COMPLETION

The date of the commencement of work shall be the date of this Agreement and shall be substantially completed on or before _____ subject to adjustments as provided in the Contract Documents.

The Contractor and the Contractor’s surety, if any, shall be liable for and shall pay the Owner the following stipulated liquidated damages for each calendar day of delay after the date established for Substantial Completion until the Work is substantially complete: _____ Dollars $ _____ per calendar day.

ARTICLE 3: THE CONTRACT SUM

The Owner shall pay the Contractor for the performance of the Contract as follows _____ Dollars, $ _____, subject to adjustments as provided in the Contract Documents.

The Contract Sum is based upon the following Alternates and Unit Prices, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

<table>
<thead>
<tr>
<th>Alternate (1)</th>
<th>Alternate (2)</th>
<th>Alternate (3)</th>
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<tbody>
<tr>
<td>Unit Prices</td>
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<td></td>
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<tr>
<td>Item</td>
<td>Price</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Price</td>
<td></td>
</tr>
</tbody>
</table>

Final payment shall be made after completion and acceptance of the work as provided in the Contract Documents.

ARTICLE 4: THE CONTRACT DOCUMENTS

The Contract Documents for this project, except for modifications issued after execution of this agreement, consist of:

.1 This agreement.

.2 AIA Document A201-2017, General Conditions of the Contract for Construction, as modified by the University.

.3 AIA A101 – 2017, Exhibit A, Insurance and Bonds, as modified by the University.
.4 The Specifications as outlined in the Project Manual (Name and date).

.5 The Drawings as listed in the Project Manual.

.6 The Addenda (List the addenda and dates issued).

.7 Other documents if any (List any other documents that are intended to be part of the Contract)

ARTICLE 5: OWNER’S REPRESENTATIVES

The Owner’s Representative on this project will be ______, who is authorized to sign contracts and other legal documents related to this project on behalf of the Owner.

The Owner’s Project Manager on this project will be _____.

The Owner and the Contractor hereby agree to the full performance of the covenants herein.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in triplicate on the day and year first above written.

UNIVERSITY OF MAINE SYSTEM

Company

By: ________________________________
CBO’s Name (printed name)
Chief Business Officer
University of Maine * Location *

Witness

Witness

By: ________________________________
Title
Performance Bond Form
Bond No. ______

KNOW ALL BY THESE PRESENTS THAT (1)_____, (2)_____, of (3)_____, and State of _____, as PRINCIPAL, and (4)_____, a corporation duly organized under the laws of the State of_____ and having a usual place of business in _____, as SURETY, are held and firmly bound unto the University of Maine System in the sum of _____ Dollars ($_____), to be paid said Treasurer of the University of Maine System, or successor in office, for which payment well and truly to be made, Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal shall promptly and faithfully perform the Contract entered into on the (5)_____ day of _____, A.D., 20_____, for the construction of (6)_____, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the University of Maine System.

Signed and sealed this (5)_____ day of _____, 20_____.

WITNESSES:

SIGNATURES:

Bonding Company Agent:

Company: ____________________________
Street: ____________________________
City, State, Zip: ____________________________
Telephone: ____________________________

(1.) Correct name of Contractor
(2.) A corporation, a partnership, or an individual, as the case may be.
(3.) Contractor’s address with City name
(4.) Correct name of Surety
(5.) Same date as that of contract.
(6.) Name of Project as designated in contract.

If Contractor is partnership, all partners should execute bond. A Power of Attorney document, together with a statement that it still is in effect shall be provided by the person executing this bond. Bond must be countersigned by a Resident Maine Agent.

**DO NOT ALTER LANGUAGE**
Payment Bond Form

Bond No. _____

KNOW ALL BY THESE PRESENTS THAT (1)____ (2)____ of _____ and State of _____, as Principal, and (3)____, a corporation duly organized under the laws of the State of _____, and having a usual place of business in _____, as Surety, are held and firmly bound unto the University of Maine System in the sum of _____ Dollars ($_____)$ for the use and benefit of claimants* as herein below defined, for the payment whereof Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal shall promptly satisfy all claims and demands incurred for all labor and materials, used or required by the Principal in connection with the work contemplated in the Contract entered into on the (4)____ day of _____, A.D., 20_____ , for the construction of (5)____, and shall fully reimburse the obligee for all outlay and expense which said obligee may incur in making good any default of said principal, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

*A Claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the contract.

Signed and sealed this (6)____ day of _____, 20____.

WITNESS:

__________________________________________________________________________

By LS ________________________________

__________________________________________________________________________

By LS ________________________________

__________________________________________________________________________

By LS ________________________________

Bondding Company Agent:

Company: ________________________________

Street: ________________________________

City, State, Zip: ________________________________

Telephone: ________________________________

(1.) Correct name of Contractor
(2.) A corporation, a partnership, or an individual, as the case may be.
(3.) Correct name of Surety
(4.) Same date as that of contract.
(5.) Name of Project as designated in contract.
(6.) Same date as that of Contract.

If contractor is partnership, all partners should execute bond.
A Power of Attorney document, together with a statement that it still is in effect shall be provided by the person executing this bond.
Bond must be countersigned by a Resident Maine Agent.

**DO NOT ALTER LANGUAGE**
PROJECT (Name and address):
University of Maine System Capital Construction Project

INSURED

A. General Liability
   1. Does the General Aggregate apply to this Project only? [ ] Yes [ ] No [ ] N/A
   2. Does this policy include coverage for:
      a. Premises - Operations? [ ]
      b. Explosion, Collapse and Underground Hazards? [ ]
      c. Personal Injury Coverage? [ ]
      d. Products Coverage? [ ]
      e. Completed Operations? [ ]
      f. Contractual Coverage for the Insured's obligations in A201? [ ]
   3. If coverage is written on a claims-made basis, what is the:
      a. Retroactive Date? [ ]
      b. Extended Reporting Date? [ ]

B. Worker's Compensation
   1. If the Insured is exempt from Worker's Compensation statutes, does the Insured
carry the equivalent Voluntary Compensation coverage? [ ]

C. Final Payment Information
   1. Is this certificate being furnished in connection with the Contractor's request for
   final payment in accordance with the requirements of Sections 9.10.2 and 11.1.3 of
   AIA Document A201, General Conditions of the Contract for Construction? [ ]
   2. If so, and if the policy period extends beyond termination of the Contract for
   Construction, is Completed Operations coverage for this Project continued for the
   balance of the policy period? [ ]

D. Termination Provisions
   1. Has each policy shown on the certificate and this Supplement been endorsed to
      provide the holder with 30 days notice of cancellation and/or expiration? List below
      any policies which do not contain this notice. [ ]

E. Other Provisions

Authorized Representative

Date of Issue
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.

**INSURERS AFFORDING COVERAGE**

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<thead>
<tr>
<th>INSURER A</th>
<th>INSURER B</th>
<th>INSURER C</th>
<th>INSURER D</th>
<th>INSURER E</th>
</tr>
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**COVERAGES**

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. Aggregate limits shown may have been reduced by paid claims.

**INSR LTR** | **TYPE OF INSURANCE** | **POLICY NUMBER** | **POLICY EFFECTIVE DATE (MM/DD/YY)** | **POLICY ExPIRATION DATE (MM/DD/YY)** | **LIMITS** |
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<tr>
<td>GENERAL LIABILITY</td>
<td>COMMERCIAL GENERAL LIABILITY CLAIMS MADE OCCUR</td>
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<td>GEN'L AGGREGATE LIMIT APPLIES PER:</td>
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<tr>
<td></td>
<td>POLICY</td>
<td>PROJECT</td>
<td>LOCATION</td>
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**AUTO MOBILE LIABILITY**

| | ANY AUTO | ALL OWNED AUTOS | SCHEDULED AUTOS | HIRED AUTOS | NON-OWNED AUTOS | COMBINED SINGLE LIMIT (Ea accident) |
| | | | | | | |

**GARAGE LIABILITY**

| | ANY AUTO | AUTO ONLY - EA ACCIDENT | OTHER THAN AUTO ONLY: EA ACC | AGG | | |
| | | | | | | |

**EXCESS LIABILITY**

| OCCUR | CLAIMS MADE | EACH OCCURRENCE | AGGREGATE | | |
| DEDUCTIBLE | RETENTION $ | | | | |

**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY**

| WC STATUTORY LIMITS | OTHER | E.L. EACH ACCIDENT | E.L. DISEASE - EA EMPLOYEE | E.L. DISEASE - POLICY LIMIT |
| | | | | |

**OTHER**

**DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS**

**CERTIFICATE HOLDER**

University of Maine System
Lewiston Hall
65 Texas Avenue
Bangor, ME 04401

**ADDITIONAL INSURED; INSURER LETTER:**

**CANCELLATION**

Should any of the above described policies be cancelled before the expiration date thereof, the issuing insurer will endeavor to mail _____ days written notice to the certificate holder named to the left, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

Authorized Representative

© ACORD CORPORATION 1988
IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.
COMMERCIAL GENERAL LIABILITY COVERAGE FORM

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine rights, duties and what is and is not covered.

Throughout this policy the words "you" and "your" refer to the Named Insured shown in the Declarations, and any other person or organization qualifying as a Named Insured under this policy. The words "we", "us" and "our" refer to the company providing this insurance.

The word "insured" means any person or organization qualifying as such under Section II – Who Is An Insured.

Other words and phrases that appear in quotation marks have special meaning. Refer to Section V – Definitions.

SECTION I – COVERAGES

COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY

1. Insuring Agreement
   a. We will pay those sums that the insured becomes legally obligated to pay as damages because of "bodily injury" or "property damage" to which this insurance applies. We will have the right and duty to defend the insured against any "suit" seeking those damages. However, we will have no duty to defend the insured against any "suit" seeking damages for "bodily injury" or "property damage" to which this insurance does not apply. We may, at our discretion, investigate any "occurrence" and settle any claim or "suit" that may result. But:
      (1) The amount we will pay for damages is limited as described in Section III – Limits Of Insurance; and
      (2) Our right and duty to defend ends when we have used up the applicable limit of insurance in the payment of judgments or settlements under Coverages A or B or medical expenses under Coverage C.
   
   No other obligation or liability to pay sums or perform acts or services is covered unless explicitly provided for under Supplementary Payments – Coverages A and B.
   
   b. This insurance applies to "bodily injury" and "property damage" only if:
      (1) The "bodily injury" or "property damage" is caused by an "occurrence" that takes place in the "coverage territory";
      (2) The "bodily injury" or "property damage" occurs during the policy period; and
      (3) Prior to the policy period, no insured listed under Paragraph 1. of Section II – Who Is An Insured and no "employee" authorized by you to give or receive notice of an "occurrence" or claim, knew that the "bodily injury" or "property damage" had occurred, in whole or in part. If such a listed insured or authorized "employee" knew, prior to the policy period, that the "bodily injury" or "property damage" occurred, then any continuation, change or resumption of such "bodily injury" or "property damage" during or after the policy period will be deemed to have been known prior to the policy period.
   
   c. "Bodily injury" or "property damage" which occurs during the policy period and was not, prior to the policy period, known to have occurred by any insured listed under Paragraph 1. of Section II – Who Is An Insured or any "employee" authorized by you to give or receive notice of an "occurrence" or claim, includes any continuation, change or resumption of that "bodily injury" or "property damage" after the end of the policy period.
   
   d. "Bodily injury" or "property damage" will be deemed to have been known to have occurred at the earliest time when any insured listed under Paragraph 1. of Section II – Who Is An Insured or any "employee" authorized by you to give or receive notice of an "occurrence" or claim:
      (1) Reports all, or any part, of the "bodily injury" or "property damage" to us or any other insurer;
      (2) Receives a written or verbal demand or claim for damages because of the "bodily injury" or "property damage"; or
      (3) Becomes aware by any other means that "bodily injury" or "property damage" has occurred or has begun to occur.
e. Damages because of "bodily injury" include damages claimed by any person or organization for care, loss of services or death resulting at any time from the "bodily injury".

2. Exclusions
This insurance does not apply to:

a. **Expected Or Intended Injury**
"Bodily injury" or "property damage" expected or intended from the standpoint of the insured. This exclusion does not apply to "bodily injury" resulting from the use of reasonable force to protect persons or property.

b. **Contractual Liability**
"Bodily injury" or "property damage" for which the insured is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages:

(1) That the insured would have in the absence of the contract or agreement; or

(2) Assumed in a contract or agreement that is an "insured contract", provided the "bodily injury" or "property damage" occurs subsequent to the execution of the contract or agreement. Solely for the purposes of liability assumed in an "insured contract", reasonable attorney fees and necessary litigation expenses incurred by or for a party other than an insured are deemed to be damages because of "bodily injury" or "property damage", provided:

(a) Liability to such party for, or for the cost of, that party's defense has also been assumed in the same "insured contract"; and

(b) Such attorney fees and litigation expenses are for defense of that party against a civil or alternative dispute resolution proceeding in which damages to which this insurance applies are alleged.

c. **Liquor Liability**
"Bodily injury" or "property damage" for which any insured may be held liable by reason of:

(1) Causing or contributing to the intoxication of any person;

(2) The furnishing of alcoholic beverages to a person under the legal drinking age or under the influence of alcohol; or

(3) Any statute, ordinance or regulation relating to the sale, gift, distribution or use of alcoholic beverages.

This exclusion applies only if you are in the business of manufacturing, distributing, selling, serving or furnishing alcoholic beverages.

d. **Workers' Compensation And Similar Laws**
Any obligation of the insured under a workers' compensation, disability benefits or unemployment compensation law or any similar law.

e. **Employer's Liability**
"Bodily injury" to:

(1) An "employee" of the insured arising out of and in the course of:

(a) Employment by the insured; or

(b) Performing duties related to the conduct of the insured's business; or

(2) The spouse, child, parent, brother or sister of that "employee" as a consequence of Paragraph (1) above.

This exclusion applies:

(1) Whether the insured may be liable as an employer or in any other capacity; and

(2) To any obligation to share damages with or repay someone else who must pay damages because of the injury.

This exclusion does not apply to liability assumed by the insured under an "insured contract".
f. Pollution

(1) "Bodily injury" or "property damage" arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants":

(a) At or from any premises, site or location which is or was at any time owned or occupied by, or rented or loaned to, any insured. However, this subparagraph does not apply to:

(i) "Bodily injury" if sustained within a building and caused by smoke, fumes, vapor or soot produced by or originating from equipment that is used to heat, cool or dehumidify the building, or equipment that is used to heat water for personal use, by the building's occupants or their guests;

(ii) "Bodily injury" or "property damage" for which you may be held liable, if you are a contractor and the owner or lessee of such premises, site or location has been added to your policy as an additional insured with respect to your ongoing operations performed for that additional insured at that premises, site or location and such premises, site or location is not and never was owned or occupied by, or rented or loaned to, any insured, other than that additional insured; or

(iii) "Bodily injury" or "property damage" arising out of heat, smoke or fumes from a "hostile fire";

(b) At or from any premises, site or location which is or was at any time used by or for any insured or others for the handling, storage, disposal, processing or treatment of waste;

(c) Which are or were at any time transported, handled, stored, treated, disposed of, or processed as waste by or for:

(i) Any insured; or

(ii) Any person or organization for whom you may be legally responsible; or

(d) At or from any premises, site or location on which any insured or any contractors or subcontractors working directly or indirectly on any insured's behalf are performing operations if the "pollutants" are brought on or to the premises, site or location in connection with such operations by such insured, contractor or subcontractor. However, this subparagraph does not apply to:

(i) "Bodily injury" or "property damage" arising out of the escape of fuels, lubricants or other operating fluids which are needed to perform the normal electrical, hydraulic or mechanical functions necessary for the operation of "mobile equipment" or its parts, if such fuels, lubricants or other operating fluids are brought on or to the premises, site or location with the intent that they be discharged, dispersed or released as part of the operations being performed by such insured, contractor or subcontractor;

(ii) "Bodily injury" or "property damage" sustained within a building and caused by the release of gases, fumes or vapors from materials brought into that building in connection with operations being performed by you or on your behalf by a contractor or subcontractor; or

(iii) "Bodily injury" or "property damage" arising out of heat, smoke or fumes from a "hostile fire".

(e) At or from any premises, site or location on which any insured or any contractors or subcontractors working directly or indirectly on any insured's behalf are performing operations if the operations are to test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants".
(2) Any loss, cost or expense arising out of any:
   (a) Request, demand, order or statutory or regulatory requirement that any insured or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants"; or
   (b) Claim or "suit" by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of, "pollutants".

However, this paragraph does not apply to liability for damages because of "property damage" that the insured would have in the absence of such request, demand, order or statutory or regulatory requirement, or such claim or "suit" by or on behalf of a governmental authority.

g. Aircraft, Auto Or Watercraft
"Bodily injury" or "property damage" arising out of the ownership, maintenance, use or entrustment to others of any aircraft, "auto" or watercraft owned or operated by or rented or loaned to any insured. Use includes operation and "loading or unloading".

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage" involved the ownership, maintenance, use or entrustment to others of any aircraft, "auto" or watercraft that is owned or operated by or rented or loaned to any insured.

This exclusion does not apply to:
(1) A watercraft while ashore on premises you own or rent;
(2) A watercraft you do not own that is:
   (a) Less than 26 feet long; and
   (b) Not being used to carry persons or property for a charge;
(3) Parking an "auto" on, or on the ways next to, premises you own or rent, provided the "auto" is not owned by or rented or loaned to you or the insured;
(4) Liability assumed under any "insured contract" for the ownership, maintenance or use of aircraft or watercraft; or
(5) "Bodily injury" or "property damage" arising out of:
   (a) The operation of machinery or equipment that is attached to, or part of, a land vehicle that would qualify under the definition of "mobile equipment" if it were not subject to a compulsory or financial responsibility law or other motor vehicle insurance law in the state where it is licensed or principally garaged; or
   (b) the operation of any of the machinery or equipment listed in Paragraph f.(2) or f.(3) of the definition of "mobile equipment".

h. Mobile Equipment
"Bodily injury" or "property damage" arising out of:
(1) The transportation of "mobile equipment" by an "auto" owned or operated by or rented or loaned to any insured; or
(2) The use of "mobile equipment" in, or while in practice for, or while being prepared for, any prearranged racing, speed, demolition, or stunting activity.

i. War
"Bodily injury" or "property damage", however caused, arising, directly or indirectly, out of:
(1) War, including undeclared or civil war;
(2) Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or
(3) Insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending against any of these.

j. Damage To Property
"Property damage" to:
(1) Property you own, rent, or occupy, including any costs or expenses incurred by you, or any other person, organization or entity, for repair, replacement, enhancement, restoration or maintenance of such property for any reason, including prevention of injury to a person or damage to another's property;
(2) Premises you sell, give away or abandon, if the "property damage" arises out of any part of those premises;
(3) Property loaned to you;
(4) Personal property in the care, custody or control of the insured;
(5) That particular part of real property on which you or any contractors or subcontractors working directly or indirectly on your behalf are performing operations, if the "property damage" arises out of those operations; or

(6) That particular part of any property that must be restored, repaired or replaced because "your work" was incorrectly performed on it.

Paragraphs (1), (3) and (4) of this exclusion do not apply to "property damage" (other than damage by fire) to premises, including the contents of such premises, rented to you for a period of 7 or fewer consecutive days. A separate limit of insurance applies to Damage To Premises Rented To You as described in Section III – Limits Of Insurance.

Paragraph (2) of this exclusion does not apply if the premises are "your work" and were never occupied, rented or held for rental by you.

Paragraphs (3), (4), (5) and (6) of this exclusion do not apply to liability assumed under a side-track agreement.

Paragraph (6) of this exclusion does not apply to "property damage" included in the "products-completed operations hazard".

k. Damage To Your Product

"Property damage" to "your product" arising out of it or any part of it.

l. Damage To Your Work

"Property damage" to "your work" arising out of it or any part of it and included in the "products-completed operations hazard".

This exclusion does not apply if the damaged work or the work out of which the damage arises was performed on your behalf by a subcontractor.

m. Damage To Impaired Property Or Property Not Physically Injured

"Property damage" to "impaired property" or property that has not been physically injured, arising out of:

(1) A defect, deficiency, inadequacy or dangerous condition in "your product" or "your work"; or

(2) A delay or failure by you or anyone acting on your behalf to perform a contract or agreement in accordance with its terms.

This exclusion does not apply to the loss of use of other property arising out of sudden and accidental physical injury to "your product" or "your work" after it has been put to its intended use.

n. Recall Of Products, Work Or Impaired Property

Damages claimed for any loss, cost or expense incurred by you or others for the loss of use, withdrawal, recall, inspection, repair, replacement, adjustment, removal or disposal of:

(1) "Your product";

(2) "Your work"; or

(3) "Impaired property";

if such product, work, or property is withdrawn or recalled from the market or from use by any person or organization because of a known or suspected defect, deficiency, inadequacy or dangerous condition in it.

o. Personal And Advertising Injury

"Bodily injury" arising out of "personal and advertising injury".

p. Electronic Data

Damages arising out of the loss of, loss of use of, damage to, corruption of, inability to access, or inability to manipulate electronic data.

As used in this exclusion, electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software, including systems and applications software, hard or floppy disks, CD-ROMS, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

Exclusions c. through n. do not apply to damage by fire to premises while rented to you or temporarily occupied by you with permission of the owner. A separate limit of insurance applies to this coverage as described in Section III – Limits Of Insurance.

COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY

1. Insuring Agreement

a. We will pay those sums that the insured becomes legally obligated to pay as damages because of "personal and advertising injury" to which this insurance applies. We will have the right and duty to defend the insured against any "suit" seeking those damages. However, we will have no duty to defend the insured against any "suit" seeking damages for "personal and advertising injury" to which this insurance does not apply. We may, at our discretion, investigate any offense and settle any claim or "suit" that may result. But:

(1) The amount we will pay for damages is limited as described in Section III – Limits Of Insurance; and
(2) Our right and duty to defend end when we have used up the applicable limit of insurance in the payment of judgments or settlements under Coverages A or B or medical expenses under Coverage C.

No other obligation or liability to pay sums or perform acts or services is covered unless explicitly provided for under Supplementary Payments – Coverages A and B.

b. This insurance applies to "personal and advertising injury" caused by an offense arising out of your business but only if the offense was committed in the "coverage territory" during the policy period.

2. Exclusions
This insurance does not apply to:

a. Knowing Violation Of Rights Of Another
"Personal and advertising injury" caused by or at the direction of the insured with the knowledge that the act would violate the rights of another and would inflict "personal and advertising injury".

b. Material Published With Knowledge Of Falsity
"Personal and advertising injury" arising out of oral or written publication of material, if done by or at the direction of the insured with knowledge of its falsity.

c. Material Published Prior To Policy Period
"Personal and advertising injury" arising out of oral or written publication of material whose first publication took place before the beginning of the policy period.

d. Criminal Acts
"Personal and advertising injury" arising out of a criminal act committed by or at the direction of the insured.

e. Contractual Liability
"Personal and advertising injury" for which the insured has assumed liability in a contract or agreement. This exclusion does not apply to liability for damages that the insured would have in the absence of the contract or agreement.

f. Breach Of Contract
"Personal and advertising injury" arising out of a breach of contract, except an implied contract to use another's advertising idea in your "advertisement".

g. Quality Or Performance Of Goods – Failure To Conform To Statements
"Personal and advertising injury" arising out of the failure of goods, products or services to conform with any statement of quality or performance made in your "advertisement".

h. Wrong Description Of Prices
"Personal and advertising injury" arising out of the wrong description of the price of goods, products or services stated in your "advertisement".

i. Infringement Of Copyright, Patent, Trademark Or Trade Secret
"Personal and advertising injury" arising out of the infringement of copyright, patent, trademark, trade secret or other intellectual property rights. However, this exclusion does not apply to infringement, in your "advertisement", of copyright, trade dress or slogan.

j. Insureds In Media And Internet Type Businesses
"Personal and advertising injury" committed by an insured whose business is:
(1) Advertising, broadcasting, publishing or telecasting;
(2) Designing or determining content of websites for others; or
(3) An Internet search, access, content or service provider.

However, this exclusion does not apply to Paragraphs 14.a., b. and c. of "personal and advertising injury" under the Definitions Section.

For the purposes of this exclusion, the placing of frames, borders or links, or advertising, for you or others anywhere on the Internet, is not by itself, considered the business of advertising, broadcasting, publishing or telecasting.

k. Electronic Chatrooms Or Bulletin Boards
"Personal and advertising injury" arising out of an electronic chatroom or bulletin board the insured hosts, owns, or over which the insured exercises control.

l. Unauthorized Use Of Another's Name Or Product
"Personal and advertising injury" arising out of the unauthorized use of another's name or product in your e-mail address, domain name or metatag, or any other similar tactics to mislead another's potential customers.
m. Pollution

"Personal and advertising injury" arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants" at any time.

n. Pollution-Related

Any loss, cost or expense arising out of any:

(1) Request, demand, order or statutory or regulatory requirement that any insured or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants"; or

(2) Claim or suit by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of, "pollutants".

o. War

"Personal and advertising injury", however caused, arising, directly or indirectly, out of:

(1) War, including undeclared or civil war;

(2) Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or

(3) Insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending against any of these.

COVERAGE C MEDICAL PAYMENTS

1. Insuring Agreement

a. We will pay medical expenses as described below for "bodily injury" caused by an accident:

(1) On premises you own or rent;

(2) On ways next to premises you own or rent; or

(3) Because of your operations;

provided that:

(1) The accident takes place in the "coverage territory" and during the policy period;

(2) The expenses are incurred and reported to us within one year of the date of the accident; and

(3) The injured person submits to examination, at our expense, by physicians of our choice as often as we reasonably require.

b. We will make these payments regardless of fault. These payments will not exceed the applicable limit of insurance. We will pay reasonable expenses for:

(1) First aid administered at the time of an accident;

(2) Necessary medical, surgical, x-ray and dental services, including prosthetic devices; and

(3) Necessary ambulance, hospital, professional nursing and funeral services.

2. Exclusions

We will not pay expenses for "bodily injury":

a. Any Insured

To any insured, except "volunteer workers".

b. Hired Person

To a person hired to do work for or on behalf of any insured or a tenant of any insured.

c. Injury On Normally Occupied Premises

To a person injured on that part of premises you own or rent that the person normally occupies.

d. Workers Compensation And Similar Laws

To a person, whether or not an "employee" of any insured, if benefits for the "bodily injury" are payable or must be provided under a workers' compensation or disability benefits law or a similar law.

e. Athletics Activities

To a person injured while practicing, instructing or participating in any physical exercises or games, sports, or athletic contests.

f. Products-Completed Operations Hazard

Included within the "products-completed operations hazard".

g. Coverage A Exclusions

Excluded under Coverage A.

SUPPLEMENTARY PAYMENTS – COVERAGES A AND B

1. We will pay, with respect to any claim we investigate or settle, or any "suit" against an insured we defend:

a. All expenses we incur.

b. Up to $250 for cost of bail bonds required because of accidents or traffic law violations arising out of the use of any vehicle to which the Bodily Injury Liability Coverage applies. We do not have to furnish these bonds.
c. The cost of bonds to release attachments, but only for bond amounts within the applicable limit of insurance. We do not have to furnish these bonds.

d. All reasonable expenses incurred by the insured at our request to assist us in the investigation or defense of the claim or "suit", including actual loss of earnings up to $250 a day because of time off from work.

e. All costs taxed against the insured in the "suit".

f. Prejudgment interest awarded against the insured on that part of the judgment we pay. If we make an offer to pay the applicable limit of insurance, we will not pay any prejudgment interest based on that period of time after the offer.

g. All interest on the full amount of any judgment that accrues after entry of the judgment and before we have paid, offered to pay, or deposited in court the part of the judgment that is within the applicable limit of insurance.

These payments will not reduce the limits of insurance.

2. If we defend an insured against a "suit" and an indemnitee of the insured is also named as a party to the "suit", we will defend that indemnitee if all of the following conditions are met:

a. The "suit" against the indemnitee seeks damages for which the insured has assumed the liability of the indemnitee in a contract or agreement that is an "insured contract";

b. This insurance applies to such liability assumed by the insured;

c. The obligation to defend, or the cost of the defense of, that indemnitee, has also been assumed by the insured in the same "insured contract";

d. The allegations in the "suit" and the information we know about the "occurrence" are such that no conflict appears to exist between the interests of the insured and the interests of the indemnitee;

e. The indemnitee and the insured ask us to conduct and control the defense of that indemnitee against such "suit" and agree that we can assign the same counsel to defend the insured and the indemnitee; and

f. The indemnitee:

   (1) Agrees in writing to:

      (a) Cooperate with us in the investigation, settlement or defense of the "suit";

(b) Immediately send us copies of any demands, notices, summonses or legal papers received in connection with the "suit";

c. Notify any other insurer whose coverage is available to the indemnitee; and

d. Cooperate with us with respect to coordinating other applicable insurance available to the indemnitee; and

(2) Provides us with written authorization to:

(a) Obtain records and other information related to the "suit"; and

(b) Conduct and control the defense of the indemnitee in such "suit".

So long as the above conditions are met, attorneys' fees incurred by us in the defense of that indemnitee, necessary litigation expenses incurred by us and necessary litigation expenses incurred by the indemnitee at our request will be paid as Supplementary Payments. Notwithstanding the provisions of Paragraph 2.b.(2) of Section I – Coverage A – Bodily Injury And Property Damage Liability, such payments will not be deemed to be damages for "bodily injury" and "property damage" and will not reduce the limits of insurance.

Our obligation to defend an insured's indemnitee and to pay for attorneys' fees and necessary litigation expenses as Supplementary Payments ends when:

a. We have used up the applicable limit of insurance in the payment of judgments or settlements; or

b. The conditions set forth above, or the terms of the agreement described in Paragraph f. above, are no longer met.

SECTION II – WHO IS AN INSURED

1. If you are designated in the Declarations as:

a. An individual, you and your spouse are insureds, but only with respect to the conduct of a business of which you are the sole owner.

b. A partnership or joint venture, you are an insured. Your members, your partners, and their spouses are also insureds, but only with respect to the conduct of your business.

c. A limited liability company, you are an insured. Your members are also insureds, but only with respect to their duties as your managers.
d. An organization other than a partnership, joint venture or limited liability company, you are an insured. Your "executive officers" and directors are insureds, but only with respect to their duties as your officers or directors. Your stockholders are also insureds, but only with respect to their liability as stockholders.

e. A trust, you are an insured. Your trustees are also insureds, but only with respect to their duties as trustees.

2. Each of the following is also an insured:

a. Your "volunteer workers" only while performing duties related to the conduct of your business, or your "employees", other than either your "executive officers" (if you are an organization other than a partnership, joint venture or limited liability company) or your managers (if you are a limited liability company), but only for acts within the scope of their employment by you or while performing duties related to the conduct of your business. However, none of these "employees" or "volunteer workers" are insureds for:

(1) "Bodily injury" or "personal and advertising injury":

(a) To you, to your partners or members (if you are a partnership or joint venture), to your members (if you are a limited liability company), to a co-"employee" while in the course of his or her employment or performing duties related to the conduct of your business, or to your other "volunteer workers" while performing duties related to the conduct of your business;

(b) To the spouse, child, parent, brother or sister of that co-"employee" or "volunteer worker" as a consequence of Paragraph (1)(a) above;

(c) For which there is any obligation to share damages with or repay someone else who must pay damages because of the injury described in Paragraphs (1)(a) or (b) above; or

(d) Arising out of his or her providing or failing to provide professional health care services.

(2) "Property damage" to property:

(a) Owned, occupied or used by,

(b) Rented to, in the care, custody or control of, or over which physical control is being exercised for any purpose by you, any of your "employees", "volunteer workers", any partner or member (if you are a partnership or joint venture), or any member (if you are a limited liability company).

b. Any person (other than your "employee" or "volunteer worker"), or any organization while acting as your real estate manager.

c. Any person or organization having proper temporary custody of your property if you die, but only:

(1) With respect to liability arising out of the maintenance or use of that property; and

(2) Until your legal representative has been appointed.

d. Your legal representative if you die, but only with respect to duties as such. That representative will have all your rights and duties under this Coverage Part.

3. Any organization you newly acquire or form, other than a partnership, joint venture or limited liability company, and over which you maintain ownership or majority interest, will qualify as a Named Insured if there is no other similar insurance available to that organization. However:

a. Coverage under this provision is afforded only until the 90th day after you acquire or form the organization or the end of the policy period, whichever is earlier;

b. Coverage A does not apply to "bodily injury" or "property damage" that occurred before you acquired or formed the organization; and

c. Coverage B does not apply to "personal and advertising injury" arising out of an offense committed before you acquired or formed the organization.

No person or organization is an insured with respect to the conduct of any current or past partnership, joint venture or limited liability company that is not shown as a Named Insured in the Declarations.

SECTION III – LIMITS OF INSURANCE

1. The Limits of Insurance shown in the Declarations and the rules below fix the most we will pay regardless of the number of:

a. Insureds;

b. Claims made or "suits" brought; or

c. Persons or organizations making claims or bringing "suits".
2. The General Aggregate Limit is the most we will pay for the sum of:
   a. Medical expenses under Coverage C;
   b. Damages under Coverage A, except damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard"; and
   c. Damages under Coverage B.
3. The Products-Completed Operations Aggregate Limit is the most we will pay under Coverage A for damages because of "bodily injury" and "property damage" included in the "products-completed operations hazard".
4. Subject to 2. above, the Personal and Advertising Injury Limit is the most we will pay under Coverage B for the sum of all damages because of all "personal and advertising injury" sustained by any one person or organization.
5. Subject to 2. or 3. above, whichever applies, the Each Occurrence Limit is the most we will pay for the sum of:
   a. Damages under Coverage A; and
   b. Medical expenses under Coverage C because of all "bodily injury" and "property damage" arising out of any one "occurrence".
6. Subject to 5. above, the Damage To Premises Rented To You Limit is the most we will pay under Coverage A for damages because of "property damage" to any one premises, while rented to you, or in the case of damage by fire, while rented to you or temporarily occupied by you with permission of the owner.
7. Subject to 5. above, the Medical Expense Limit is the most we will pay under Coverage C for all medical expenses because of "bodily injury" sustained by any one person.

The Limits of Insurance of this Coverage Part apply separately to each consecutive annual period and to any remaining period of less than 12 months, starting with the beginning of the policy period shown in the Declarations, unless the policy period is extended after issuance for an additional period of less than 12 months. In that case, the additional period will be deemed part of the last preceding period for purposes of determining the Limits of Insurance.

SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS

1. Bankruptcy
   Bankruptcy or insolvency of the insured or of the insured's estate will not relieve us of our obligations under this Coverage Part.

2. Duties In The Event Of Occurrence, Offense, Claim Or Suit
   a. You must see to it that we are notified as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, notice should include:
      (1) How, when and where the "occurrence" or offense took place;
      (2) The names and addresses of any injured persons and witnesses; and
      (3) The nature and location of any injury or damage arising out of the "occurrence" or offense.
   b. If a claim is made or "suit" is brought against any insured, you must:
      (1) Immediately record the specifics of the claim or "suit" and the date received; and
      (2) Notify us as soon as practicable.
      You must see to it that we receive written notice of the claim or "suit" as soon as practicable.
   c. You and any other involved insured must:
      (1) Immediately send us copies of any demands, notices, summonses or legal papers received in connection with the claim or "suit";
      (2) Authorize us to obtain records and other information;
      (3) Cooperate with us in the investigation or settlement of the claim or defense against the "suit"; and
      (4) Assist us, upon our request, in the enforcement of any right against any person or organization which may be liable to the insured because of injury or damage to which this insurance may also apply.
   d. No insured will, except at that insured's own cost, voluntarily make a payment, assume any obligation, or incur any expense, other than for first aid, without our consent.
3. Legal Action Against Us
   No person or organization has a right under this Coverage Part:
   a. To join us as a party or otherwise bring us into a "suit" asking for damages from an insured; or
b. To sue us on this Coverage Part unless all of its terms have been fully complied with.

A person or organization may sue us to recover on an agreed settlement or on a final judgment against an insured; but we will not be liable for damages that are not payable under the terms of this Coverage Part or that are in excess of the applicable limit of insurance. An agreed settlement means a settlement and release of liability signed by us, the insured and the claimant or the claimant's legal representative.

4. Other Insurance

If other valid and collectible insurance is available to the insured for a loss we cover under Coverages A or B of this Coverage Part, our obligations are limited as follows:

a. Primary Insurance

This insurance is primary except when b. below applies. If this insurance is primary, our obligations are not affected unless any of the other insurance is also primary. Then, we will share with all other insurance by the method described in c. below.

b. Excess Insurance

This insurance is excess over:

(1) Any of the other insurance, whether primary, excess, contingent or on any other basis:

(a) That is Fire, Extended Coverage, Builder's Risk, Installation Risk or similar coverage for "your work";

(b) That is Fire insurance for premises rented to you or temporarily occupied by you with permission of the owner;

(c) That is insurance purchased by you to cover your liability as a tenant for "property damage" to premises rented to you or temporarily occupied by you with permission of the owner; or

(d) If the loss arises out of the maintenance or use of aircraft, "autos" or watercraft to the extent not subject to Exclusion g. of Section I – Coverage A – Bodily Injury And Property Damage Liability.

(2) Any other primary insurance available to you covering liability for damages arising out of the premises or operations, or the products and completed operations, for which you have been added as an additional insured by attachment of an endorsement.

When this insurance is excess, we will have no duty under Coverages A or B to defend the insured against any "suit" if any other insurer has a duty to defend the insured against that "suit". If no other insurer defends, we will undertake to do so, but we will be entitled to the insured's rights against all those other insurers.

When this insurance is excess over other insurance, we will pay only our share of the amount of the loss, if any, that exceeds the sum of:

(1) The total amount that all such other insurance would pay for the loss in the absence of this insurance; and

(2) The total of all deductible and self-insured amounts under all other insurance.

We will share the remaining loss, if any, with any other insurance that is not described in this Excess Insurance provision and was not bought specifically to apply in excess of the Limits of Insurance shown in the Declarations of this Coverage Part.

c. Method Of Sharing

If all of the other insurance permits contribution by equal shares, we will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable limit of insurance or none of the loss remains, whichever comes first.

If any of the other insurance does not permit contribution by equal shares, we will contribute by limits. Under this method, each insurer's share is based on the ratio of its applicable limit of insurance to the total applicable limits of insurance of all insurers.

5. Premium Audit

a. We will compute all premiums for this Coverage Part in accordance with our rules and rates.

b. Premium shown in this Coverage Part as advance premium is a deposit premium only. At the close of each audit period we will compute the earned premium for that period and send notice to the first Named Insured. The due date for audit and retrospective premiums is the date shown as the due date on the bill. If the sum of the advance and audit premiums paid for the policy period is greater than the earned premium, we will return the excess to the first Named Insured.

c. The first Named Insured must keep records of the information we need for premium computation, and send us copies at such times as we may request.
6. Representations
By accepting this policy, you agree:
   a. The statements in the Declarations are accurate and complete;
   b. Those statements are based upon representations you made to us; and
   c. We have issued this policy in reliance upon your representations.

7. Separation Of Insureds
Except with respect to the Limits of Insurance, and any rights or duties specifically assigned in this Coverage Part to the first Named Insured, this insurance applies:
   a. As if each Named Insured were the only Named Insured; and
   b. Separately to each insured against whom claim is made or "suit" is brought.

8. Transfer Of Rights Of Recovery Against Others To Us
If the insured has rights to recover all or part of any payment we have made under this Coverage Part, those rights are transferred to us. The insured must do nothing after loss to impair them. At our request, the insured will bring "suit" or transfer those rights to us and help us enforce them.

9. When We Do Not Renew
If we decide not to renew this Coverage Part, we will mail or deliver to the first Named Insured shown in the Declarations written notice of the non-renewal not less than 30 days before the expiration date.

   If notice is mailed, proof of mailing will be sufficient proof of notice.

SECTION V – DEFINITIONS
1. "Advertisement" means a notice that is broadcast or published to the general public or specific market segments about your goods, products or services for the purpose of attracting customers or supporters. For the purposes of this definition:
   a. Notices that are published include material placed on the Internet or on similar electronic means of communication; and
   b. Regarding web-sites, only that part of a web-site that is about your goods, products or services for the purposes of attracting customers or supporters is considered an advertisement.

2. "Auto" means:
   a. A land motor vehicle, trailer or semitrailer designed for travel on public roads, including any attached machinery or equipment; or
   b. Any other land vehicle that is subject to a compulsory or financial responsibility law or other motor vehicle insurance law in the state where it is licensed or principally garaged.

However, "auto" does not include "mobile equipment".

3. "Bodily injury" means bodily injury, sickness or disease sustained by a person, including death resulting from any of these at any time.

4. "Coverage territory" means:
   a. The United States of America (including its territories and possessions), Puerto Rico and Canada;
   b. International waters or airspace, but only if the injury or damage occurs in the course of travel or transportation between any places included in a. above; or
   c. All other parts of the world if the injury or damage arises out of:
      (1) Goods or products made or sold by you in the territory described in a. above;
      (2) The activities of a person whose home is in the territory described in a. above, but is away for a short time on your business; or
      (3) "Personal and advertising injury" offenses that take place through the Internet or similar electronic means of communication provided the insured's responsibility to pay damages is determined in a "suit" on the merits, in the territory described in a. above or in a settlement we agree to.

5. "Employee" includes a "leased worker". "Employee" does not include a "temporary worker".

6. "Executive officer" means a person holding any of the officer positions created by your charter, constitution, by-laws or any other similar governing document.

7. "Hostile fire" means one which becomes uncontrollable or breaks out from where it was intended to be.

8. "Impaired property" means tangible property, other than "your product" or "your work", that cannot be used or is less useful because:
   a. It incorporates "your product" or "your work" that is known or thought to be defective, deficient, inadequate or dangerous; or
   b. You have failed to fulfill the terms of a contract or agreement;

   if such property can be restored to use by:
   a. The repair, replacement, adjustment or removal of "your product" or "your work"; or
b. Your fulfilling the terms of the contract or agreement.

9. "Insured contract" means:

a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for damage by fire to premises while rented to you or temporarily occupied by you with permission of the owner is not an "insured contract";

b. A sidetrack agreement;

c. Any easement or license agreement, except in connection with construction or demolition operations on or within 50 feet of a railroad;

d. An obligation, as required by ordinance, to indemnify a municipality, except in connection with work for a municipality;

e. An elevator maintenance agreement;

f. That part of any other contract or agreement pertaining to your business (including an indemnification of a municipality in connection with work performed for a municipality) under which you assume the tort liability of another party to pay for "bodily injury" or "property damage" to a third person or organization. Tort liability means a liability that would be imposed by law in the absence of any contract or agreement.

Paragraph f. does not include that part of any contract or agreement:

1. That indemnifies a railroad for "bodily injury" or "property damage" arising out of construction or demolition operations, within 50 feet of any railroad property and affecting any railroad bridge or trestle, tracks, roadbeds, tunnel, underpass or crossing;

2. That indemnifies an architect, engineer or surveyor for injury or damage arising out of:

   a. Preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
   
   b. Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage; or

3. Under which the insured, if an architect, engineer or surveyor, assumes liability for an injury or damage arising out of the insured's rendering or failure to render professional services, including those listed in (2) above and supervisory, inspection, architectural or engineering activities.

10. "Leased worker" means a person leased to you by a labor leasing firm under an agreement between you and the labor leasing firm, to perform duties related to the conduct of your business. "Leased worker" does not include a "temporary worker".

11. "Loading or unloading" means the handling of property:

a. After it is moved from the place where it is accepted for movement into or onto an aircraft, watercraft or "auto";

b. While it is in or on an aircraft, watercraft or "auto"; or

c. While it is being moved from an aircraft, watercraft or "auto" to the place where it is finally delivered;

but "loading or unloading" does not include the movement of property by means of a mechanical device, other than a hand truck, that is not attached to the aircraft, watercraft or "auto".

12. "Mobile equipment" means any of the following types of land vehicles, including any attached machinery or equipment:

a. Bulldozers, farm machinery, forklifts and other vehicles designed for use principally off public roads;

b. Vehicles maintained for use solely on or next to premises you own or rent;

c. Vehicles that travel on crawler treads;

d. Vehicles, whether self-propelled or not, maintained primarily to provide mobility to permanently mounted:

   (1) Power cranes, shovels, loaders, diggers or drills; or
   
   (2) Road construction or resurfacing equipment such as graders, scrapers or rollers;

e. Vehicles not described in a., b., c. or d. above that are not self-propelled and are maintained primarily to provide mobility to permanently attached equipment of the following types:

   (1) Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting and well servicing equipment; or
   
   (2) Cherry pickers and similar devices used to raise or lower workers;

f. Vehicles not described in a., b., c. or d. above maintained primarily for purposes other than the transportation of persons or cargo.

However, self-propelled vehicles with the following types of permanently attached equipment are not "mobile equipment" but will be considered "autos":
(1) Equipment designed primarily for:
   (a) Snow removal;
   (b) Road maintenance, but not construction or resurfacing; or
   (c) Street cleaning;
(2) Cherry pickers and similar devices mounted on automobile or truck chassis and used to raise or lower workers; and
(3) Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting and well servicing equipment.

However, "mobile equipment" does not include any land vehicles that are subject to a compulsory or financial responsibility law or other motor vehicle insurance law in the state where it is licensed or principally garaged. Land vehicles subject to a compulsory or financial responsibility law or other motor vehicle insurance law are considered "autos".

13. "Occurrence" means an accident, including continuous or repeated exposure to substantially the same general harmful conditions.

14. "Personal and advertising injury" means injury, including consequential "bodily injury", arising out of one or more of the following offenses:
   a. False arrest, detention or imprisonment;
   b. Malicious prosecution;
   c. The wrongful eviction from, wrongful entry into, or invasion of the right of private occupancy of a room, dwelling or premises that a person occupies, committed by or on behalf of its owner, landlord or lessor;
   d. Oral or written publication, in any manner, of material that slanders or libels a person or organization or disparages a person's or organization's goods, products or services;
   e. Oral or written publication, in any manner, of material that violates a person's right of privacy;
   f. The use of another's advertising idea in your "advertisement";
   g. Infringing upon another's copyright, trade dress or slogan in your "advertisement".

15. "Pollutants" mean any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalies, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.

16. "Products-completed operations hazard":
   a. Includes all "bodily injury" and "property damage" occurring away from premises you own or rent and arising out of "your product" or "your work" except:
      (1) Products that are still in your physical possession;
      (2) Work that has not yet been completed or abandoned. However, "your work" will be deemed completed at the earliest of the following times:
         (a) When all of the work called for in your contract has been completed.
         (b) When all of the work to be done at the job site has been completed if your contract calls for work at more than one job site.
         (c) When that part of the work done at a job site has been put to its intended use by any person or organization other than another contractor or subcontractor working on the same project.
   b. Does not include "bodily injury" or "property damage" arising out of:
      (1) The transportation of property, unless the injury or damage arises out of a condition in or on a vehicle not owned or operated by you, and that condition was created by the "loading or unloading" of that vehicle by any insured;
      (2) The existence of tools, uninstalled equipment or abandoned or unused materials; or
      (3) Products or operations for which the classification, listed in the Declarations or in a policy schedule, states that products-completed operations are subject to the General Aggregate Limit.

17. "Property damage" means:
   a. Physical injury to tangible property, including all resulting loss of use of that property. All such loss of use shall be deemed to occur at the time of the physical injury that caused it; or
b. Loss of use of tangible property that is not physically injured. All such loss of use shall be deemed to occur at the time of the "occurrence" that caused it.

For the purposes of this insurance, electronic data is not tangible property.

As used in this definition, electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software, including systems and applications software, hard or floppy disks, CD-ROMS, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

18. "Suit" means a civil proceeding in which damages because of "bodily injury", "property damage" or "personal and advertising injury" to which this insurance applies are alleged. "Suit" includes:
   a. An arbitration proceeding in which such damages are claimed and to which the insured must submit or does submit with our consent; or
   b. Any other alternative dispute resolution proceeding in which such damages are claimed and to which the insured submits with our consent.

19. "Temporary worker" means a person who is furnished to you to substitute for a permanent "employee" on leave or to meet seasonal or short-term workload conditions.

20. "Volunteer worker" means a person who is not your "employee", and who donates his or her work and acts at the direction of and within the scope of duties determined by you, and is not paid a fee, salary or other compensation by you or anyone else for their work performed for you.

21. "Your product":
   a. Means:
      (1) Any goods or products, other than real property, manufactured, sold, handled, distributed or disposed of by:
         (a) You;
         (b) Others trading under your name; or
         (c) A person or organization whose business or assets you have acquired; and
      (2) Containers (other than vehicles), materials, parts or equipment furnished in connection with such goods or products.
   b. Includes
      (1) Warranties or representations made at any time with respect to the fitness, quality, durability, performance or use of "your product"; and
      (2) The providing of or failure to provide warnings or instructions.

22. "Your work":
   a. Means:
      (1) Work or operations performed by you or on your behalf; and
      (2) Materials, parts or equipment furnished in connection with such work or operations.
   b. Includes
      (1) Warranties or representations made at any time with respect to the fitness, quality, durability, performance or use of "your work", and
      (2) The providing of or failure to provide warnings or instructions.
THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

<table>
<thead>
<tr>
<th>Name Of Additional Insured Person(s)</th>
<th>Location(s) Of Covered Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Or Organization(s):</td>
<td></td>
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</tbody>
</table>

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. Section II – Who is An Insured is amended to include as an additional insured: the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:
   1. Your acts or omissions; or
   2. The acts or omissions of those acting on your behalf,
   in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

   This insurance does not apply to "bodily injury" or "property damage" occurring after:
   1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
   2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.
THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

<table>
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<tr>
<th>Name Of Additional Insured Person(s) Or Organization(s):</th>
<th>Location And Description Of Completed Operations</th>
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Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

Section II – Who is an Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".
This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Designated Location(s):

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under COVERAGE A (SECTION I), and for all medical expenses caused by accidents under COVERAGE C (SECTION I), which can be attributed only to operations at a single designated "location" shown in the Schedule above:

1. A separate Designated Location General Aggregate Limit applies to each designated "location", and that limit is equal to the amount of the General Aggregate Limit shown in the Declarations.

2. The Designated Location General Aggregate Limit is the most we will pay for the sum of all damages under COVERAGE A, except damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard", and for medical expenses under COVERAGE C regardless of the number of:
   a. Insureds;
   b. Claims made or "suits" brought; or
   c. Persons or organizations making claims or bringing "suits".

3. Any payments made under COVERAGE A for damages or under COVERAGE C for medical expenses shall reduce the Designated Location General Aggregate Limit for that designated "location". Such payments shall not reduce the General Aggregate Limit shown in the Declarations nor shall they reduce any other Designated Location General Aggregate Limit for any other designated "location" shown in the Schedule above.

4. The limits shown in the Declarations for Each Occurrence, Fire Damage and Medical Expense continue to apply. However, instead of being subject to the General Aggregate Limit shown in the Declarations, such limits will be subject to the applicable Designated Location General Aggregate Limit.
B. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under COVERAGE A (SECTION I), and for all medical expenses caused by accidents under COVERAGE C (SECTION I), which cannot be attributed only to operations at a single designated "location" shown in the Schedule above:

1. Any payments made under COVERAGE A for damages or under COVERAGE C for medical expenses shall reduce the amount available under the General Aggregate Limit or the Products-Completed Operations Aggregate Limit, whichever is applicable; and

2. Such payments shall not reduce any Designated Location General Aggregate Limit.

C. When coverage for liability arising out of the "products-completed operations hazard" is provided, any payments for damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard" will reduce the Products-Completed Operations Aggregate Limit, and not reduce the General Aggregate Limit nor the Designated Location General Aggregate Limit.

D. For the purposes of this endorsement, the Definitions Section is amended by the addition of the following definition:

"Location" means premises involving the same or connecting lots, or premises whose connection is interrupted only by a street, roadway, waterway or right-of-way of a railroad.

E. The provisions of Limits Of Insurance (SECTION III) not otherwise modified by this endorsement shall continue to apply as stipulated.
Continuation Sheet  University of Maine System Project

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor’s signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION OF WORK</th>
<th>SCHEDULED VALUE</th>
<th>WORK COMPLETED</th>
<th>MATERIALS PRESENTLY STORED (NOT IN D OR E)</th>
<th>TOTAL COMPLETED AND STORED TO DATE (D+E+F)</th>
<th>% (G + C)</th>
<th>BALANCE TO FINISH (C - G)</th>
<th>RETAINAGE (IF VARIABLE RATE)</th>
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GRAND TOTAL $0.00 $0.00 $0.00 $0.00 $0.00 0.00 % $0.00 $0.00 $0.00
Application and Certificate for Payment

TO OWNER: University of Maine System
16 Central Street, Bangor, ME 04401-5106

PROJECT: University of Maine System Project

APPLICATION NO: 001

PERIOD TO: 

CONTRACT FOR: 

CONTRACT DATE: 

PROJECT NOS: / / 

DISTRIBUTION TO: 
OWNER: 
ARCHITECT: 
CONTRACTOR: 
FIELD: 
OTHER: 

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM ................................................................. $ 0.00
2. NET CHANGE BY CHANGE ORDERS ...................................................... $ 0.00
3. CONTRACT SUM TO DATE (Line 1 + 2) ................................................... $ 0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) ................... $ 0.00

5. RETAINAGE:
   a. 0 % of Completed Work
      (Column D + E on G703) $ 0.00
   b. 0 % of Stored Material
      (Column F on G703) $ 0.00

Total Retainage (Lines 5a + 5b or Total in Column l of G703) ....................... $ 0.00

6. TOTAL EARNED LESS RETAINAGE ....................................................... $ 0.00
   (Line 4 Less Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..................................... $ 0.00
   (Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE ....................................................................... $ 0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE
   (Line 3 Less Line 6) ............................................................................ $ 0.00

CHANGE ORDER SUMMARY

<table>
<thead>
<tr>
<th>ADDITIONS</th>
<th>DEDUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total changes approved in previous months by Owner</td>
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</tr>
<tr>
<td>Total approved this Month</td>
<td>$ 0.00</td>
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<tr>
<td>TOTALS</td>
<td>$ 0.00</td>
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<tr>
<td>NET CHANGES by Change Order</td>
<td>$ 0.00</td>
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The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: ___________________________ Date: _______________

State of:
County of:
Subscribed and sworn to before me this ___ day of

Notary Public:
My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Contractor's knowledge, information and belief the Work has progressed as indicated; the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED .................................................................................. $ 0.00

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:
By: ___________________________ Date: _______________

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.
Sales Tax Form

Date __________________________________________________________________________________

TO: __________________________________________________________________________________

Vendor Name ____________________________________________________________________________

Vendor Address __________________________________________________________________________

Vendor City State Zip _____________________________________________________________________

I hereby certify under penalties of perjury, that:

I am engaged in the performance of a construction contract on a project for the University of Maine System which is a Sales Tax exempt organization under the Maine Sales and Use Tax Law, Section 1760, subsection 2 and 16;

This Project is titled: ______________________________________________________________________ Project Title

This project is located at: __________________________________________________________________ Campus Name or Town

This certificate is issued to cover purchases of materials that will be permanently incorporated into the real property belonging to the exempt organization or government agency indicated above.

Signed: ________________________________________________________________________________

Authorized Signature

FIRM ___________________________________________________________________________________
Consent of Surety to Reduction in or Partial Release of Retainage

PROJECT: (Name and address)
University of Maine System Project

ARCHITECT'S PROJECT NUMBER:

OWNER: ☐
ARCHITECT: ☐
CONTRACTOR: ☐

TO OWNER: (Name and address)
University of Maine System
16 Central Street
Bangor, ME 04401-5106

CONTRACT FOR:

CONTRACT DATED:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the (Insert name and address of Surety)

on bond of
(Insert name and address of Contractor)

SURETY, ☐

CONTRACTOR, ☐

hereby approves the reduction in or partial release of retainage to the Contractor as follows:

The Surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

(Surety)

Signature of authorized representative

Attest:
(Seal):

(Printed name and title)
STORED MATERIALS

University of Maine * Location *
* Campus Address *

Project Title: ____________________________
Location: ________________________________
Contractor: ______________________________

Materials and/or equipment (hereinafter “Materials”) that have not yet been incorporated into the work may be delivered and suitably stored, at the site or some other location agreed upon by the Owner. The Materials listed below have been estimated at 100% of the cost and will be stored at ______. The Owner will reimburse the Contractor based upon the prices included on the Schedule of Values Form, 00 62 73(AIA G703), less the cost of installation. The Contractor must complete sufficient copies of this Stored Materials Form, 00 62 79, to accompany the Application for Payment. The Contractor shall secure the signature of its bonding company on all forms and shall also provide a Power of Attorney from the bonding company.

SCHEDULE

<table>
<thead>
<tr>
<th>Qty</th>
<th>Material/Equipment</th>
<th>Item in AIA G703</th>
<th>Unit Wholesale Price</th>
<th>Extended Wholesale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Item No</td>
<td>Unit Price</td>
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</tr>
</tbody>
</table>

Surety By: ____________________________________________

Power of Attorney Must be Attached Attorney-in-Fact

Date: ____________________________

BILL OF SALE

The Contractor, ______, (will store/has stored) certain Materials (at the site of this project/at an approved warehouse/at bonded warehouse) and will be paid in accordance with the provisions of the General Conditions of the Contract for Construction. In consideration of the sum of $______ paid to the contractor by the Owner, and, in compliance with the provisions of the Contract, and, with the intention to be legally bound, the Contractor does hereby grant, bargain, sell and deliver unto the Owner, it successors and assigns, all and singular, the Materials described in the schedule above. The Contractor agrees that:

1. Contractor has good title to the Materials, free and clear of all liens and encumbrances, and title is granted to the Owner;

2. The Materials will be used only in the construction of the above referenced project, under the provisions of the Contract, and will not be diverted elsewhere without the prior written consent of the Owner;

3. The Materials have been delivered to and are at the places approved for storage, and they are clearly marked and identified as the property of the Owner and are stored in a safe and secure manner to protect from damage or loss;
4. The Contractor will pay all expenses in connection with the sale, delivery, storage, protection and insurance of Materials granted to the Owner.

5. The Contractor will remain responsible for the Materials, which will remain under its custody and control for all losses, and will fully indemnify the Owner for the cost of the Materials should the Materials be lost or damaged or stolen, regardless of exclusions in insurance policies required under this document. The contractor has insured the Materials against loss or damage by fire (with extended coverage), theft and burglary, with loss payable to the Owner.

6. The Contractor agrees that the quantities of Materials set forth in the Schedule of Values Form represents the maximum quantities for which it may be entitled to payment under the provisions of the contract;

7. The following information is included with this form:

   (1) An Application for Payment;
   (2) An invoice or copy of an invoice for Materials stored;
   (3) Evidence of payment, or when payment has not been made, a letter on the Contractor’s letterhead authorizing payment to be made jointly to the Contractor and the Supplier;
   (4) Photographs showing the stored Materials and its location;
   (5) a fire and theft insurance policy rider for the stored Materials.
   (6) a warehouseman’s receipt acknowledging that the Materials being stored at the warehouse are being held for the benefit of the Contractor or University.

Witness: ____________________________________________

By: ____________________________________________ (SEAL)
       Principal/Contractor-Individual

Witness: ____________________________________________

__________________________________________________
       Principal/Contractor-Individual

Attest: ____________________________________________

By: ____________________________________________
       Principal/Contractor-Corporation

__________________________________________________
       Secretary

__________________________________________________
       President
AIA® Document G716™ – 2004

Request for Information ("RFI")

TO: 
FROM: 

PROJECT: 
ISSUE DATE: 
RFI No. 001

University of Maine System Project

PROJECT NUMBERS: 
REQUESTED REPLY DATE: 

REFERENCES/ATTACHMENTS: (List specific documents researched when seeking the information requested.)

SPECIFICATIONS: 
DRAWINGS: 
OTHER:

SENDERS RECOMMENDATION: (If RFI concerns a site or construction condition, the sender may provide a recommended solution, including cost and/or schedule considerations.)

RECEIVER'S REPLY: (Provide answer to RFI, including cost and/or schedule considerations.)

BY 
DATE 
COPIES TO 

Note: This reply is not an authorization to proceed with work involving additional cost, time or both. If any reply requires a change to the Contract Documents, a Change Order, Construction Change Directive or a Minor Change in the work must be executed in accordance with the Contract Documents.
The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.

DESCRIPTION:

ATTACHMENTS:
(Here insert listing of documents that support description.)

ISSUED BY THE ARCHITECT:

(Signature) (Printed name and title)
Construction Change Directive

<table>
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<th>DIRECTIVE NUMBER:</th>
<th>OWNER:</th>
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<tbody>
<tr>
<td>University of Maine</td>
<td>DATE:</td>
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<tr>
<td>System Project</td>
<td>CONTRACT FOR:</td>
<td>ARCHITECT:</td>
</tr>
<tr>
<td>TO CONTRACTOR: (Name and address)</td>
<td>CONTRACT DATED:</td>
<td>CONSULTANT:</td>
</tr>
<tr>
<td></td>
<td>ARCHITECT'S PROJECT NUMBER:</td>
<td>CONTRACTOR:</td>
</tr>
</tbody>
</table>

You are hereby directed to make the following change(s) in this Contract:
(Describe briefly any proposed changes or list any attached information in the alternative)

**PROPOSED ADJUSTMENTS**

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:
   - [x] Lump Sum decrease of $0.00
   - [ ] Unit Price of $ per
   - [ ] As provided in Section 7.3.3 of AIA Document A201-2007
   - [ ] As follows:

2. The Contract Time is proposed to ( ). The proposed adjustment, if any, is ___ days.

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Contractor signature indicates agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this CCD.

<table>
<thead>
<tr>
<th>ARCHITECT (Firm name)</th>
<th>OWNER (Firm name)</th>
<th>CONSTRUCTOR (Firm name)</th>
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</table>
Work Changes Proposal Request

PROJECT (Name and address):
University of Maine System Project

OWNER (Name and address):

FROM ARCHITECT (Name and address):

TO CONTRACTOR (Name and address):

PROPOSAL REQUEST NUMBER:

DATE OF ISSUANCE:

CONTRACT FOR:

CONTRACT DATE:

ARCHITECT’S PROJECT NUMBER:

OWNER: □
ARCHITECT: □
CONSULTANT: □
CONTRACTOR: □
FIELD: □
OTHER: □

Please submit an itemized proposal for changes in the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. Within ( ) days, the Contractor must submit this proposal or notify the Architect, in writing, of the date on which proposal submission is anticipated.

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

DESCRIPTION (Insert a written description of the Work):

ATTACHMENTS (List attached documents that support description):

REQUESTED BY THE ARCHITECT:

(Signature) (Printed name and title)
**Change Order**

**PROJECT:** (Name and address)  
**OWNER:** (Name and address)  
**ARCHITECT:** (Name and address)  
**CONTRACTOR:** (Name and address)

**CONTRACT INFORMATION:**  
Contract For: General Construction

**CHANGE ORDER INFORMATION:**  
Change Order Number: 001

**THE CONTRACT IS CHANGED AS FOLLOWS:**

(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

- The original Contract Sum was $0.00
- The net change by previously authorized Change Orders $0.00
- The Contract Sum prior to this Change Order was $0.00
- The Contract Sum will be increased by this Change Order in the amount of $0.00
- The new Contract Sum including this Change Order will be $0.00
- The Contract Time will be increased by Zero (0) days.
- The new date of Substantial Completion will be

**NOTE:** This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

**NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.**

**ARCHITECT** (Firm name)  
**SIGNATURE**  
**PRINTED NAME AND TITLE**  
**DATE**

**CONTRACTOR** (Firm name)  
**SIGNATURE**  
**PRINTED NAME AND TITLE**  
**DATE**

**OWNER** (Firm name)  
**SIGNATURE**  
**PRINTED NAME AND TITLE**  
**DATE**
AIA Document G704™ – 2000

Certificate of Substantial Completion

PROJECT:
(Name and address)
University of Maine System
Capital Construction Project

PROJECT NUMBER:
/ 

OWNER:

CONTRACT FOR: General Construction

ARCHITECT:

CONTRACT DATE:

CONTRACTOR:

TO OWNER:
(Name and address)
University of Maine System
acting through ** Campus Name & Address **

TO CONTRACTOR:
(Name and address)

FIELD:

OTHER:

PROJECT OR PORTION OF THE PROJECT DESIGNATED FOR PARTIAL OCCUPANCY OR USE SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated above is the date of issuance established by this Certificate, which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

Warranty

Date of Commencement

ARCHITECT

BY

DATE OF ISSUANCE

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment.

Cost estimate of Work that is incomplete or defective: $0.00

The Contractor will complete or correct the Work on the list of items attached hereto within Zero (0) days from the above date of Substantial Completion.

CONTRACTOR

BY

DATE

The Owner accepts the Work or designated portion as substantially complete and will assume full possession at (time) on (date).

OWNER

BY

DATE

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance shall be as follows:
(Note: Owner’s and Contractor’s legal and insurance counsel should determine and review insurance requirements and coverage.)
University of Maine System
Certificate of Completion
(Final)

CONTRACT DATED:

PROJECT NAME:

SUBSTANTIAL COMPLETION DATE:

FINAL COMPLETION is defined, in accordance with Article 9 of the General Conditions, as the date certified by the Architect when all the Work of the Project is fully complete, the Close-Out requirements of Paragraph 9.10 of the General Conditions have been completed, including the Close-Out Meeting and approval of Close-Out by the Architect, in accordance with Subparagraph 9.10.2, and the Contract fully performed in accordance with the Contract Documents, and the Contractor entitled to final payment.

The CONTRACTOR certifies that the Work is fully completed and was completed on or before ______, 20______, and submits herewith:

Application for Final Payment (AIA G702, or equal)
Affidavit of Payments (AIA G706, or equal)
Consent of Surety (AIA G707, or equal)
Release of Liens (AIA G706A, or equal)
Waiver of Lien

CONTRACTOR:

By: _________________________________ Date: ______________

The Architect has inspected the Work and has determined that the Date of Final Completion was______, 20______.

ARCHITECT:

By: _________________________________ Date: ______________

The OWNER hereby accepts the Work as fully complete and will make final payment.

By: _________________________________
Campus Signature Authority
Title
University of
Date: _________________________________
Contractor’s Affidavit of Payment of Debts and Claims

PROJECT: (Name and address) University of Maine System Project
ARCHITECT’S PROJECT NUMBER: 
ARCHITECT: 
OWNER: 
CONTRACT FOR: General Construction 
CONTRACTOR: 
SURETY: 
OTHER: 

TO OWNER: (Name and address) CONTRACT DATED: 

STATE OF: 
COUNTY OF: 

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner’s property might in any way be held responsible or encumbered. 

EXCEPTIONS: 

SUPPORTING DOCUMENTS ATTACHED HERETO: 

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose.  
Indicate Attachment ☐ Yes ☒ No 

The following supporting documents should be attached hereto if required by the Owner: 

1. Contractor’s Release or Waiver of Liens, conditional upon receipt of final payment. 

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof. 


CONTRACTOR: (Name and address) 

BY: ____________________________ 
(Signature of authorized representative) 

(Printed name and title) 

Subscribed and sworn to before me on this date: 

Notary Public: 
My Commission Expires: 

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User Notes: 

(1194345551)
Contractor's Affidavit of Release of Liens

PROJECT: (Name and address)  
University of Maine System Project 2

ARCHITECT'S PROJECT NUMBER:  

OWNER: ☐  
ARCHITECT: ☐  
CONTRACTOR: ☐

TO OWNER: (Name and address)  
University of Maine System  
16 Central Street  
Bangor, ME 04401-5106

STATE OF: Maine  
COUNTY OF:  

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: (Name and address)

BY:  
(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:  
My Commission Expires:
Date:
State of Maine
County of 

TO: University of Maine System,
acting through
** Campus Name**
** Campus Address**

SUBJECT

Project Name

Project Location

Upon receipt of the sum of _____(being the balance due us under the existing contract or subcontract agreement for work on the Subject Project) the undersigned agrees that it will waive and release the University of Maine System from any and all lien or claim or right to lien on the Subject Project under the Statutes of the State of Maine relating to liens for labor, materials and/or subcontracts furnished for the Subject Project on premises belonging to the University of Maine System.

Signed: 

Authorized Signature

Title

Firm Name: 

NOTARY

Subscribed and sworn to before me this _____ day of _____, 20____.

Signature Notary Public
Consen Of Surety to Final Payment

PROJECT: (Name and address)
University of Maine System Project

ARCHITECT’S PROJECT NUMBER:

OWNER:

CONTRACT FOR:

ARCHITECT:

TO OWNER: (Name and address)
University of Maine System
16 Central Street
Bangor, ME 04401-5106

CONTRACT DATED:

CONTRACTOR:

SURETY:

OTHER:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

on bond of

(Insert name and address of Surety)

SURETY,

(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety

of any of its obligations to

(Insert name and address of Owner)

, OWNER,

as set forth in said Surety’s bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

(Insert in writing the month followed by the numeric date and year.)

(Surety)

(Signature of authorized representative)

Attest:

(Seal):

(Printed name and title)
for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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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 a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect’s consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect’s 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 the Owner and by Separate Contractors.

§ 1.1.5 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.

§ 1.1.6 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.

§ 1.1.7 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.

§ 1.1.8 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. The Architect is the Initial Decision Maker for this Agreement.

§ 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. Where the Procurement Requirements include provisions that portions of the Work be File Bid in accordance with the requirements of the Maine Bid Depository System, the subcontracts for these portions of the work will cover the same scope of work as defined by the Procurement Requirements and the File Bid and shall have the same contract amount as listed in the successful bid.

§ 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. The provisions of this section shall not be deemed to modify the contract between the University of Maine System (the Owner) and the Architect under B102-2017 and B201-2017.

§ 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. The provisions of this section shall not be deemed to modify the contract between the University of Maine System (the Owner) and the Architect under B102-2017 and B201-2017.

§ 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 may use AIA Document G201-2013 Project Digital Data Protocol Form and 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 Architect does 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.

§ 2.2.21 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 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.

§ 2.2.23 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.

§ 2.2.34 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 information in order to perform the Contractor’s duties under the Contract for the benefit of the Owner.
§ 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.

§ 2.3.2 The Architect is a person or entity lawfully licensed to practice in the State of Maine. That person or entity is identified in the Agreement and is referred throughout the Contract Documents as if singular in number. Whenever the prime professional designer for the Work is an Engineer, the term Architect, wherever used in these documents shall have the term Engineer substituted for the term Architect. The Engineer shall be lawfully licensed to practice engineering in the State of Maine or an entity lawfully practicing engineering identified as such in the Agreement. 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 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 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 at all times conduct exercise proper precautions relating to the safe performance of the Work, including but not limited to appropriate precautions.

§ 2.3.5 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.

§ 2.3.6 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.

§ 2.4 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 prior approval of the Architect and the 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 Architect’s 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 Architect in the Architect’s 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 2.3.4, 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 Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the 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 Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the 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 industry standard or better 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 and 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. Unless the Architect 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 Work 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 and in accordance with a Change Order or Construction Change Directive.

§ 3.4.2.1 After the Contract has been executed, the Owner and Architect may consider a formal request for substitution of products in place of those specified. The Owner shall deduct from the next payment made from the Contract Sum amounts paid to the Architect to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of the substitutions.

By making requests for substitutions, the Contractor

1. Represents that the Contractor has personally investigated the proposed substitute product and determined it is equal or superior in all respects to that specified;
2. Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
3. Certifies that the cost data presented is complete and includes all related costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and,
4. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be completed in all respects.

§ 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.

§ 3.4.4 If a wage scale prepared by the State of Maine Department of Labor, Bureau of Labor Standards, is included in the Contract Documents, such wage scale represents the minimum wages that must be paid in each category of labor employed on the project.

The provisions of Title 26 MRSA Chapter 15 Preference to Maine Workers and Contractors, apply to this project, including but not limited to:

§ 1310. Wage and benefits rates to be kept posted
A clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

§ 1311. Wage and benefit record of contractor
The contractor and each subcontractor in charge of the construction of a public work shall keep an accurate record showing the names and occupation of all laborers, workers and mechanics employed by them and all independent contractors working under contract with them in connection with the construction on the public works. The record must also show for all laborers, workers, mechanics and independent contractors the hours worked, the title of the job, the hourly rate or other method of remuneration and the actual wages or other
compensation paid to each of the laborers, workers, mechanics and independent contractors. A copy of such a record must be kept at the job site and must be open at all reasonable hours to the inspection of the Bureau of Labor Standards and the public authority that let the contract and its officers and agents. It is not necessary to preserve those records for a period longer than 3 years after the termination of the contract. A copy of each such record must also be filed monthly with the public authority that let the contract. The filed record is a public record pursuant to Title 1, chapter 13, except that the public authority letting a contract shall adopt rules to protect the privacy of personal information contained in the records filed with the public authority under this section, such as Social Security numbers and taxpayer identification numbers. The rules may not prevent the disclosure of information regarding the classification of workers or independent contractors and the remuneration they receive. Such rules are routine technical rules as defined by Title 5, chapter 375, subchapter 2-A.

§ 3.5 Warranty
§ 3.5.1 The Contractor warrants to the Owner 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 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 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.

§ 3.6.1 The University of Maine System is exempt from payment of taxes under the Maine Sales and Use Tax Law Title 36 Section 1760 for taxes on materials that are permanently incorporated into the real property belonging to the University of Maine System. The University of Maine System is also exempt from the payment of Federal Excise Taxes on articles not for resale and from the Federal Transportation Tax on all shipments; exemption certificates for these taxes will be furnished when required. All quotations shall be less these taxes. The contractor shall pay all other taxes that have been or are legally enacted.

§ 3.7 Permits, Fees, Notices and Compliance with Laws
§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as 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 and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect 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 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 and Contractor, stating the reasons. If either party disputes the Architect’s determination or recommendation, that 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 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, 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 of the 
name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may 
notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed 
superintendent or (2) requires additional time for review. Failure of the Architect 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 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 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.

.1 The Contractor shall provide an updated Construction Schedule with each Application for Payment 
reflecting actual construction progress and activities.

§ 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 Architect’s approval. The Architect’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 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 perform the Work in general accordance with the most recent schedules submitted to the 
Owner and Architect.

§ 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 Architect and Owner, and 
delivered to the Architect 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 is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is 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 Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner 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 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 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 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 and the Architect 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.

§ 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 Architect at the time and in the form specified by the Architect.

§ 3.12.11 The Architect's review of the Contractor's submittals will be limited to examination of an initial submission and two (2) resubmittals. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall deduct from the next payment made from the Contract Sum amounts paid to the Architect for evaluation of such additional submittals.

§ 3.13 Use of Site
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.

§ 3.14 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 or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, 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 may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.15.3 Waste Management. The University is committed to a resource management strategy which reduces to a minimum the production of waste material while reusing, recycling or composting as much as possible of the remaining materials. Contractor will submit a construction waste management plan for the project that identifies opportunities to reduce, reuse, or recycle waste from renovations or new construction.

§ 3.16 Access to Work
The Contractor shall provide the Owner 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 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 or Architect. 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.

§ 3.18 Indemnification
§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner,
Architect, 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
§ 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 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents
shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent
shall not be unreasonably withheld.

§ 4.2 Administration of the Contract
§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be
an Owner’s representative during construction until the date the final payment is due, and from time to time during the
period for correction of Work described in § 12.2, and until the date the Architect issues the final Certificate for
Payment. The 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, endeavor
to guard the Owner against defects and deficiencies in the Work, 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. The 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.

1 The Contractor shall reimburse the Owner for compensation paid to the Architect for additional site
visits made necessary by the fault, neglect as determined solely by the Owner, or request of the
Contractor. The reimbursement shall be deducted from the next payment made from the Contract Sum
following the Owner’s payment to the Architect.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and
quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the
Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor,
and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor’s
failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications
The Owner and Contractor 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 Contractor 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 Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect’s evaluations of the Contractor’s Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 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. Review of such submittals 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 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 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.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner’s review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 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 Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

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

§ 4.2.12 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 rendered in good faith.
§ 4.2.13 The Architect’s decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect’s response to such requests 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 a Separate Contractor or the subcontractors of a Separate Contractor.

§ 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 Owner 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 Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

1. The Contractor shall provide Owner a list of all subcontractors and independent contractors on the job site and a record of the entity to whom that subcontractor or independent contractor is directly contracted and by whom that subcontractor or independent contractor is insured for workers’ compensation purposes. The list shall be presented at the preconstruction meeting and, when changes occur, at each requisition meeting as necessary.

2. Where the use of the Maine Bid Depository is required by the Procurement Requirements, Subcontractors included in the Contractor's Proposal shall be the Subcontractors for the defined Work unless a change has been approved by the Owner.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner 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 or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner 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 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 and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract.
§ 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 and to Award Separate Contracts

§ 6.1.1 The term “Separate Contractor(s)” shall mean other contractors retained by the Owner under separate agreements. 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 separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner’s own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 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 and Separate 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 or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor’s Work. Failure of the Contractor to notify 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 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 Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor 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 a Separate Contractor’s delays, improperly timed activities, damage to the Work or defective construction.

§ 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 or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor 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, 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 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, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner 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.

§ 7.1.4 The combined overhead and profit included in the total cost to the Owner of a Change in the Work shall be based on a previously agreed upon unit pricing or on the following schedule allowing for appropriate allowances for contract duration:

1. For the Contractor, for Work performed by the Contractor's own forces, 20% of the cost.
2. For the Contractor, for Work performed by the Contractor's Subcontractors, 10% of the amount due the Subcontractors.
3. For each Subcontractor involved, for Work performed by the Subcontractor's own forces, 20% of the cost.
4. For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, 10% of the amount due the Sub-subcontractor.
5. Costs to which overhead and profit is to be applied shall be limited to the following:
   1. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers’ compensation insurance;
   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; and,
.4 Costs of premiums for all bonds, insurance, permit fees, and sales, use or similar taxes related to the Work.

§ 7.1.5 When there is only an extension of Contract Time, any Claim for delay made pursuant to Article 15 is limited to additional costs related to supervision and field office personnel, which may be included in the overhead and profit calculation.

§ 7.1.6 In order to facilitate checking of quotations, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they are to be itemized also. In no case will a change be approved without such itemization.

§ 7.2 Change Orders
§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect 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 Architect and signed by the Owner 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 Architect 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 Architect 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 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 Architect 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 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 Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect’s professional judgment, to be reasonably justified. The Architect’s 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 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 Architect will 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 Architect 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 Architect 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 or Architect, of an employee of either, or of a Separate Contractor; (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 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 Architect 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 Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor’s Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by 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 ten days before the date established for each progress payment, the Contractor shall submit to the Architect 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 or Architect require, such as copies of requisitions, and releases and waivers of liens 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 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.

§ 9.3.1.3 The provisions of Title 5 M.R.S.A § 1746, as amended, pertain to this project. The Owner shall retain five percent (5%) of each payment due the Contractor as part of the security for the fulfillment of the Contract Agreement by the Contractor; the Contractor shall not withhold a greater percentage from subcontractors. The Owner may, if deemed expedient by the Owner, cause the Contractor to be paid temporarily or permanently from time to time during the progress of the work, such portion of the amount retained as the Owner deems prudent or desirable.
§ 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 The Architect will, within seven days after receipt of the Contractor’s Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor 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 Contractor and Owner of the Architect’s reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect’s evaluation of the Work and the data in the Application for Payment, 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 entitled to payment in the amount certified. The foregoing representations 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 Architect. However, the issuance of a Certificate for Payment will not be a representation that the 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 Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect’s opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect’s opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of defective Work, i.e. Work that does not conform to the requirements of the Contract, shall include, but not be limited to, non-conforming Work, disputed Work, incomplete Work, and unacceptable Work, which is not remedied;

.1 The Architect shall deduct and withhold from any certification for payment an amount equal to one hundred and fifty percent (150%) the value of any defective Work.

.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;
.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 withholds certification for payment under Section 9.5.1.3, 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 Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a 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 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 Architect 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 Architect and Owner 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 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.
§ 9.6.9 All Progress Payments and Final Payment are subject to the requirements of the "Maine Prompt Pay Act" Title 10 M.R.S.A. ch. 201-A, as amended. Payments shall be made on a timely basis in accord with the requirements of this Statute; however, the Contractor waives interest on any late payment.

§ 9.7 Failure of Payment
If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after 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 Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days’ notice to the Owner 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 that 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 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 Contractor’s list, the Architect 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 Contractor’s 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 to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare 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 shall 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.
§ 9.10.4

Except with the consent of the Owner, the Architect will perform no more than three (3) site reviews to determine whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional site reviews.

§ 9.10.5

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

- liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;

- failure of the Work to comply with the requirements of the Contract Documents;

- terms of special warranties required by the Contract Documents; or

- audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.6

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.
§ 9.11 The Contractor and the Contractor’s Surety, if any, shall be liable for and shall pay the Owner the sums stipulated as liquidated damages in the Contract Documents for each calendar day of delay after the date established for Substantial Completion in the Contract Documents until the Work is substantially complete.

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.

§ 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; and

.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.

.4 If this Contract involves renovation, repair, or preparation of surfaces for painting in pre-1978 apartments, houses, or spaces used by child care facilities, Contractor shall use certified workers who follow the lead-safe work practices as required by the US Environmental Protection Agency’s Renovation, Repair and Remodeling rule described in 40 CFR § 745.85. Notification of the tenants or users under this rule will be the responsibility of the Owner.

§ 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 and 10.2.1.3 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 and 10.2.1.3. 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 or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either 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 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 and Substances

§ 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 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 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 and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor 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, Architect, Architect’s consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to exclusive of 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 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. This indemnification obligation shall not apply to any claim for which Owner would not be liable under the Maine Tort Claims Act (14 M.R.S.A. ‘8101, et seq.) if such claim were made directly against Owner and Owner shall continue to enjoy all rights, claims, immunities and defenses available to it under law.

§ 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, exclusive of attorneys’ fees.

§ 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, 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 to the Owner 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 the Contractor 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 to the Contractor 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 Architect and Architect’s consultants; and (3) 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 Architect, Architect’s consultants, 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 and Architect for loss of use of the Owner’s property, due to fire or other hazards however caused, with the exception of intentional acts or grossly negligent consultants, contractors or sub-contractors.

§ 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 Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the 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 45 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 Architect’s request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect’s 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 Architect has not specifically requested to examine prior to its being covered, the 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 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 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 or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2 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.

§ 12.2.3 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.

§ 12.2.4 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.

§ 12.2.5 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, 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 Architect timely notice of when and where tests and inspections are to be made so that the 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 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 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 Architect of when and where tests and inspections are to be made so that the 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 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 Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the 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 Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, 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 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 or entities 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 and the 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, 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 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 be certified by the Initial Decision Maker, upon application, 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 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 the 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; but not including overhead and profit on Work not executed.

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 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

- 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
- 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 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 after 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 The parties have selected arbitration as the method for binding dispute resolution in this Agreement, any claim, dispute or other matter in question arising out of or related to this Agreement 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 conducted in the place where the Project is located, unless another place is mutually agreed upon, and in accordance with its Construction Industry Arbitration Rules in effect on the date of this Agreement, except that the parties shall select only one Arbitrator, and there shall be no discovery. A demand for arbitration shall be made in writing, delivered to the other party to this Agreement, 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 defended. 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.

§ 15.4.2 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.
**Schedule of Liquidated Damages**

Liquidated damages (a fixed amount set forth in the contract) agreed to by the owner and the contractor are intended to compensate the owner for unexcused delay in the performance of the contract. The parties agree that the purpose of the liquidated damages schedule below is to establish, in advance, a reasonable estimate of the damages that would be incurred by the owner if there is an unexcused delay, or a breach of contract, which causes the work to be extended beyond the contractual substantial completion date. This agreement of liquidated damages by the parties is made to establish the reasonableness of them to the actual damages an owner may have incur due to unexcused delays by the contractor, even though the actual damages may be an uncertain amount and unprovable.

The specific per diem rates for Liquidated Damages are *$ fill in amount / set forth below*. By executing the Contract, the Contractor acknowledges that such an amount is not a penalty and that the daily amount set forth in the Contract is a reasonable per diem forecast of damages incurred by the Owner due to the Contractor's failure to complete the Work within the Contract Time.

<table>
<thead>
<tr>
<th>Original Contract Amount</th>
<th>Per Diem Amount of Liquidated Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>From More Than 0 to and Including $100,000</td>
<td>$500</td>
</tr>
<tr>
<td>$100,000 to $300,000</td>
<td>$675</td>
</tr>
<tr>
<td>$300,000 to $500,000</td>
<td>$750</td>
</tr>
<tr>
<td>$500,000 to $1,000,000</td>
<td>$825</td>
</tr>
<tr>
<td>$1,000,000 to $2,000,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>$2,000,000 to $4,000,000</td>
<td>$1,250</td>
</tr>
<tr>
<td>$4,000,000 and more</td>
<td>$1,500</td>
</tr>
</tbody>
</table>
Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the « » day of « » in the year « »
(In words, indicate day, month and year.)

for the following PROJECT:
(Name and location or address)

« »
« »

THE OWNER:
(Name, legal status and address)

« «University of Maine System, acting through the»« »
« »

THE CONTRACTOR:
(Name, legal status and address)

« »« »
« »

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor’s request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner’s usual general liability insurance.

§ A.2.3 Required Property Insurance
§ A.2.3.1 For this project, Property Insurance coverage, up to the total amount of the Project, will be provided by the University by either adding the Project to the University’s existing master property insurance or purchasing a stand-alone builder’s risk policy. Coverage shall be included for the Contractor and all Subcontractors, as their interests may appear, while involved in the Project and until the work is completed or the contractor is otherwise advised in writing. This insurance is limited to the "all risk" type coverage provided under the University's master property insurance for direct physical loss or damage to the building or building materials related to the project, subject to standard policy limitations and exclusions. The contractor is responsible for a $10,000 per claim deductible. Any other insurance desired by the Contractor beyond that covered by the University's insurance, or to cover the $10,000 deductible, is the responsibility of the Contractor. This contract stands as verification of the University's property insurance coverage on the project and no further verification will be provided.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows: (Indicate below the cause of loss and any applicable sub-limit.)

<table>
<thead>
<tr>
<th>Causes of Loss</th>
<th>Sub-Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect’s and Contractor’s services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows: (Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Sub-Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3.1 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner’s occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.
§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, “all-risk” property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

[ ] § A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance, to reimburse the Owner for loss of use of the Owner’s property, or the inability to conduct normal operations due to a covered cause of loss.

[ ] § A.2.4.2 Ordinance or Law Insurance, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

[ ] § A.2.4.3 Expediting Cost Insurance, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

[ ] § A.2.4.4 Extra Expense Insurance, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

[ ] § A.2.4.5 Civil Authority Insurance, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

[ ] § A.2.4.6 Ingress/Egress Insurance, for loss due to the necessary interruption of the insured’s business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

[ ] § A.2.4.7 Soft Costs Insurance, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional...
interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.
The Owner shall purchase and maintain the insurance selected below. (Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

- [ ] § A.2.5.1 Cyber Security Insurance for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information. (Indicate applicable limits of coverage or other conditions in the fill point below.)

- [ ] § A.2.5.2 Other Insurance (List below any other insurance coverage to be provided by the Owner and any applicable limits.)

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Limits</th>
</tr>
</thead>
</table>

ARTICLE A.3 CONTRACTOR’S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner’s written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor’s Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.1.1 Certificates of Insurance filed with the University of Maine System shall indicate the Certificate Holder as:

University of Maine System
Office of Risk Management
65 Texas Avenue
Bangor ME 04401

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect’s consultants as additional insureds for claims caused in whole or in part by the Contractor’s negligent acts or omissions during the Contractor’s operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor’s negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner’s general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect’s consultants, CG 20 32 07 04. All required insurance shall be provided by companies that have a current A.M. Best insurance rating of A- or better and that are licensed or approved to do business in the State of Maine.
§ A.3.2 Contractor’s Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than two million dollars ($2,000,000) each occurrence, two million dollars ($2,000,000) general aggregate, and two million dollars ($2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including:

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
.2 personal injury and advertising injury;
.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
.4 bodily injury or property damage arising out of completed operations; and
.5 the Contractor’s indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor’s Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
.2 Claims for property damage to the Contractor’s Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
.3 Claims for bodily injury other than to employees of the insured.
.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
.8 Claims related to roofing, if the Work involves roofing.
.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
.10 Claims related to earth subsidence or movement, where the Work involves such hazards.
.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million dollars ($1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.
§ A.3.2.5 Workers’ Compensation at statutory limits.

§ A.3.2.6 Employers’ Liability with policy limits not less than «five hundred thousand dollars» ($ «500,000» ) each accident, «five hundred thousand dollars» ($ «500,000» ) each employee, and «five hundred thousand dollars» ($ «500,000» ) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers’ Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks. Policy limits for such coverage shall not be less than five hundred thousand dollars ($500,000) each accident, five hundred thousand dollars ($500,000) each employee, and five hundred thousand dollars ($500,000) policy limit. Contractor is required to provide proof of such coverage, if applicable to the Work, by submitting a copy of the endorsement or by submitting the USLH form WC 00 01 06 A (current edition).

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than «one million dollars» ($ «1,000,000» ) per claim and «one million dollars» ($ «1,000,000» ) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than «one million dollars» ($ «1,000,000» ) per claim and «two million dollars» ($ «2,000,000» ) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than «one million dollars» ($ «1,000,000» ) per claim and «two million dollars» ($ «2,000,000» ) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than «two million dollars» ($ «2,000,000» ) per claim and «two million dollars» ($ «2,000,000» ) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than «one million dollars» ($ «1,000,000» ) per claim and «one million dollars» ($ «1,000,000» ) in the aggregate. Authorization from Administration of the University of Maine System must be obtained thirty (30) days prior to the utilization of the equipment.

§ A.3.3 Contractor’s Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below: (If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1. (Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[ ] § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance. Except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall...
provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

(Where the Contractor’s obligation to provide property insurance differs from the Owner’s obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

### § A.3.3.2.2 Railroad Protective Liability Insurance

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

### § A.3.3.2.3 Asbestos Abatement Liability Insurance

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

### § A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an “all-risks” completed value form.

### § A.3.3.2.5 Property insurance on an “all-risks” completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

### § A.3.3.2.6 Other Insurance

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### § A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

and the Contractor shall furnish a Performance Bond and a Payment Bond covering the faithful performance of the Contract and payment of obligations arising thereof. Bonds may be obtained through the Contractor’s usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100% of the Contract Sum. Should the Contract Sum change during the contract and warranty periods, the amount of the Bonds will be changed to reflect the Contract Sum.

1. The Contractor shall deliver the required bonds to the Owner at the same time as the signed Contract Agreement is delivered to the Owner. Prior to the commencement of the Work, the Contractor shall submit satisfactory evidence that such bonds will be furnished.

2. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

3. The Contract Bonds shall continue in effect for one year after final acceptance of each contract to protect the Owner’s interest in connection with the one year guarantee of workmanship and materials and to assure settlement of claims, for the payment of all bills for labor, materials, and equipment by the Contractor.

(Specify type and penal sum of bonds.)

<table>
<thead>
<tr>
<th>Type</th>
<th>Penal Sum ($0.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment Bond</td>
<td></td>
</tr>
<tr>
<td>Performance Bond</td>
<td></td>
</tr>
</tbody>
</table>
Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS
Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

«N/A »
Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid to laborers and workers employed on the below titled project.

2020 Fair Minimum Wage Rates
Highway & Earth Cumberland County

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>Minimum Wage</th>
<th>Minimum Benefit</th>
<th>Total</th>
<th>Occupation Title</th>
<th>Minimum Wage</th>
<th>Minimum Benefit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Raker</td>
<td>$16.00</td>
<td>$0.00</td>
<td>$16.00</td>
<td>Laborers (Helpers &amp; Tenders)</td>
<td>$16.00</td>
<td>$0.79</td>
<td>$16.79</td>
</tr>
<tr>
<td>Backhoe Loader Operator</td>
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<td>$4.21</td>
<td>$26.93</td>
<td>Laborer - Skilled</td>
<td>$18.75</td>
<td>$1.15</td>
<td>$19.90</td>
</tr>
<tr>
<td>Boom Truck (Truck Crane) Operator</td>
<td>$25.00</td>
<td>$4.94</td>
<td>$29.94</td>
<td>Loader Operator - Front-End</td>
<td>$20.00</td>
<td>$3.00</td>
<td>$23.00</td>
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<td>Bulldozer Operator</td>
<td>$27.25</td>
<td>$6.14</td>
<td>$33.39</td>
<td>Mechanic - Maintenance</td>
<td>$23.00</td>
<td>$3.09</td>
<td>$26.09</td>
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<td>Carpenter</td>
<td>$22.46</td>
<td>$2.19</td>
<td>$24.65</td>
<td>Millwright</td>
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<td>$7.73</td>
<td>$37.55</td>
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<td>Cement Mason/Finisher</td>
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<td>$4.04</td>
<td>$20.04</td>
<td>Painter</td>
<td>$18.00</td>
<td>$0.45</td>
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<td>Crane Operator (&gt;15 Tons)</td>
<td>$30.00</td>
<td>$7.76</td>
<td>$37.76</td>
<td>Paver Operator</td>
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<td>$5.33</td>
<td>$25.83</td>
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<td>$12.00</td>
<td>$8.82</td>
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<td>Plumber (Licensed)</td>
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<td>$6.27</td>
<td>$34.27</td>
<td>Reclaimer Operator</td>
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<td>$36.16</td>
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<td>Electrician Helper/Cable Puller</td>
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<td>$1.84</td>
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<td>Roller Operator - Earth</td>
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<td>$23.39</td>
<td>$3.11</td>
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<td>Screed/Wheelman</td>
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<td>Fence Setter</td>
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<td>$14.50</td>
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<td>Grader/Scraper Operator</td>
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<td>Highway Worker/Guardrail Installer</td>
<td>$18.25</td>
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<td>Truck Driver - Heavy</td>
<td>$18.00</td>
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<td>$19.40</td>
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<tr>
<td>Hot Top Plant Operator</td>
<td>$22.91</td>
<td>$13.25</td>
<td>$36.16</td>
<td>Truck Driver - Tractor Trailer</td>
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<td>Ironworker - Reinforcing</td>
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<td>$7.18</td>
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<td>Ironworker - Structural</td>
<td>$26.01</td>
<td>$22.27</td>
<td>$48.28</td>
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</tr>
</tbody>
</table>

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices – The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Title 26 §1310 requires that a clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

Appeal – Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates.

A true copy

Attest:  
Scott R. Cotnoir  
Wage & Hour Director  
Bureau of Labor Standards

Expiration Date: 12-31-2020
SECTION 011000 - SUMMARY

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 SUMMARY

A. This Section includes the following:
   1. Roles and Responsibilities.
   2. Work covered by the Contract Documents.
   3. Type of the Contract.
   5. Work under other contracts.
   6. Owner-furnished products.
   7. Use of premises.
   8. Owner's occupancy requirements.
   10. Specification formats and conventions.

B. Related Sections include the following:
   1. All Divisions and Sections.

1.03 ROLES AND RESPONSIBILITIES

A. Owner: University of Maine System for the University of Southern Maine, P. O. Box 9300, Portland, ME 04104-9300.

B. Engineer: Woodard & Curran, 41 Hutchins Drive, Portland, ME 04102.

1.04 WORK COVERED BY CONTRACT DOCUMENTS

A. Provide materials, labor, equipment, services and supervision to construct a new parking lot of approx. 65,000 sf, and 183 spots. Work includes but is not limited to removal of existing pavement, lighting and utilities. New Work includes asphalt paving, porous pavement, lighting, stormwater treatment, pavement striping, granite curbing, utility work, and landscaping.

B. Project Location: 44 Bedford St., Portland, ME

1.05 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract: design, bid, build. Prime contractor must include all work indicated in construction documents.

1.06 WORK SCHEDULE

A. Work in the field may commence MAY 11, 2020.

B. Substantial Completion shall be by AUGUST 14, 2020.

C. Final Completion shall be by AUGUST 21, 2020.
1.07 WORK UNDER OTHER 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. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
   1. It is anticipated that work will begin on the new Student Residential Hall and Student Center on the north side of Bedford St. during the course of this project.

1.08 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Owner Occupancy: Allow for Owner occupancy of rooms and facilities adjacent to the work and used by the public.
   2. Driveways and Entrances: Keep driveways, parking, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Use of Existing Buildings: Maintain existing buildings in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

D. Campus Tobacco Use Policy: A tobacco-free campus has been established at The University of Southern Maine to provide a healthy working and learning environment for the entire campus community.
   1. The University of Southern Maine is a tobacco-free campus. This policy applies to faculty, staff, students, contractors, vendors and visitors. The use of tobacco and all smoking products is not permitted on any university-owned property, which includes but is not limited to, buildings, university grounds, parking areas, campus walkways, recreational and sporting facilities, and university or personally-owned, rented or leased vehicles.
   2. Tobacco use by definition includes the possession of any lighted tobacco products, or the use of any type of smokeless tobacco, including but not limited to chew, snuff, snus, electronic cigarettes, and all other nicotine delivery devices that are non-FDA approved as cessation products.
   3. It is the shared responsibility of all members of the campus community to respect and abide by this policy. The successful implementation of this policy depends on the courtesy and cooperation of the entire campus community.

1.09 OWNER'S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy adjacent site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize...
conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours’ notice to Owner of activities that will affect Owner's operations.

1.10 WORK RESTRICTIONS

A. All work shall be performed in accordance with the approved City of Portland Site Plan Application and Site Location of Development (SLOD) Permit Amendment, included as an Appendix to the Project Manual.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Engineer and Owner not less than three days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.
   3. Shutdowns shall be scheduled during after hours, or during semester breaks, when the facility is not occupied.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "2004 MasterFormat" numbering system.
   1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
   2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.

B. 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. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
   2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
      a. 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.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000
SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing Allowances.
   1. Certain items or work may be specified in the Contract Documents by Allowances. Allowances established in lieu of actual requirements defer specific requirements to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of Allowances include the following:
   1. Lump-sum Allowances.
   2. Quantity Allowances.

C. Related Sections include the following:
   1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for Allowances.
   2. Divisions 02 through 33 Sections for items of Work covered by Allowances.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect/Engineer 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/Engineer’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.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in Allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each Allowance.

C. Coordinate and process submittals for Allowance items in same manner as for other portions of the Work.
1.5 COORDINATION
   A. Coordinate Allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM, AND QUANTITY ALLOWANCES
   A. Allowance shall include cost to Contractor, and to sub-bidders of specific products and materials ordered by Owner under Allowance less any applicable trade discounts, and shall include taxes, freight, and delivery to Project site, costs for receiving and handling at Project site, labor and installation.

   B. Contractor's overhead and profit for Allowances, including Allowances carried in the sub-bidder bids, shall be included as part of the Contract Sum (base bid) and not part of the Allowance. Sub-bidder's overhead and profit for Allowances shall be included as part of the Contract Sum (sub base-bid) and not part of the Allowance. The Allowance amount will be adjusted by an add or deduct change order for the net difference without additional markup.

   C. Quantity Allowances shall be net quantities, and shall be adjusted by applicable unit cost or applicable specified measurement and payment procedures.

   D. To adjust Allowance amounts, prepare a Change Order proposal based on the difference between actual installed cost amount and the Allowance.
      1. Include installation costs as part of the Allowance.
      2. Submit documentation on supplier's and subcontractor's letterhead actual cost and quantities for associated Allowances.

1.7 UNUSED MATERIALS
   A. Return unused materials purchased under an Allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
      1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine products covered by an Allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 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.
3.3 SCHEDULE OF CASH ALLOWANCES

A. Refer to Division 33 - Utilities for cash Allowances. Allowances shall be included as part of the Division 33 bid.

1. Include an Allowance of $25,000.00 to relocate the existing CMP utility pole #3 and its angled support at the southern edge of the Project to the south side of fence such that it will not obstruct parking spaces or travel lanes.

END OF SECTION 012100
PART 1 - GENERAL

1.1 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.

1.2 SUMMARY
A. This Section includes administrative and procedural requirements for Unit Prices.
B. Related Sections include the following:
   1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS
A. Unit Price is an amount proposed by bidders, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification.

1.4 PROCEDURES
A. Unit Prices include all necessary material, plus cost for delivery, hauling, disposal, installation, insurance, applicable taxes, overhead, and profit.
B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.
C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established Unit Prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
D. Schedule: A Schedule of Unit Prices to be submitted with the bid is included at the end of this Section. Submit Unit Prices with the bid on Document 004113 - Bid Form, included under Division 00.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine products covered by a Unit Price promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.
3.2 PREPARATION

A. Coordinate materials and their installation for each Unit Price with related materials and installations to ensure that each Unit Price item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF UNIT PRICES

A. Refer to Division 31 - Earthwork for Unit Prices.
   1. Unit Price #1: contaminated soil removal / disposal / replacement per cubic yard.
   2. Unit Price #2: mirafi 600X (or equivalent) per square yard.

B. Refer to Division 33 – Utilities for Unit Prices
   1. Unit Price #3: 2” rigid insulation per square yard.
UNIT PRICE SCHEDULE

Unit Prices: The contractor agrees to perform additional work as ordered or to allow for work ordered omitted in accordance with the following Unit Prices. Unit Prices will be used to adjust the cost for the actual quantity of unsuitable soil removal and replacement listed in the quantity allowance in Section 312000 - Earth Moving. Unit Prices will be applied to the net change in final quantities of work involved. The deduct price will be the same as the add.

a) Rock excavation, including removal from site - per cubic yard - open
b) Rock excavation, including removal from site -per cubic yard- trench

END OF SECTION 012200
SECTION 012300 - ALTERNATES

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 SUMMARY
A. This Section includes administrative and procedural requirements for Alternates.

1.03 DEFINITIONS
A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
1. The cost or credit for each Alternate is the net addition to or deduction from the Contract Sum to incorporate Alternate into the Work. No other adjustments are made to the Contract Sum.
2. Hold pricing for 90 days from date of bid opening to allow Owner time for project accounting. Alternates not accepted before contract signing may be added by Change Order later.

1.04 PROCEDURES
A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the Alternate into Project.
1. Include as part of each Alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of Alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each Alternate. Indicate if Alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to Alternates.

C. Execute accepted Alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each Alternate.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. Alternate No. 1 – In lieu of new and/or used granite curbing, provide precast concrete curbing.
   Refer to Specification Section 32 16 13

B. Alternate No. 2 – In lieu of new and/or used granite curbing, provide asphalt curbing.
   Refer to Specification Section 32 16 13

END OF SECTION 012300
SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

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 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.03 PROPOSAL REQUESTS

A. Owner / Engineer-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
   2. Within 10 days after receipt of Proposal Request or earlier as specified in Proposal Request issued, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

B. Contractor-Initiated Proposal Requests: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change.
   2. Submit Proposal Requests no later than 30 days after discovery of latent or unforeseen conditions, or sooner if the progression of work will be affected by the Proposal Request.

C. Quotations in response to Proposal Requests: All Proposal Requests, whether initiated by the Owner, Engineer or Contractor, shall include the following:
   1. A list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   2. Applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   3. Costs of labor and supervision directly attributable to the change.
   4. Quotes on Suppliers’ or Subcontractors’ letterhead for the requested change.
   5. An updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float time before requesting an extension of the Contract Time.

1.04 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request quotation or finalized Construction Change Directive, Engineer will issue a University of Maine Change Order form, AIA G701 Change Order, for signatures of Owner, Engineer and Contractor. Contract amounts can only be
changed via an executed Change Order. Owner will not make payment to Contractor for any change until a Change Order is executed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600
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 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:
   1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   2. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.03 SCHEDULE OF VALUES

A. Use AIA Document G703 Continuation Sheet for Schedule of Values.

B. Correlate line items in the Schedule of Values with other required administrative forms and schedules such as Application and Certificate for Payment, Submittal Schedule, and Construction Schedule.

C. Round amounts to nearest whole dollar, total shall equal the Contract Sum.

D. Submit the Schedule of Values to Engineer for approval at earliest possible date but no later than 30 days before the date scheduled for submittal of initial Application for Payment.

E. Where the Work is separated into phases requiring separately phased payments, provide Sub-schedules showing values correlated with each phase of payment.

F. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents, providing at least one line item for each Specification Section. Provide several line items for principal subcontract amounts, where appropriate.
   1. For each line item, breakdown amount into Material and Labor
   2. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
      a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
      b. Only major long lead delivery items may be considered for off-site storage (Example: Long lead custom mechanical unit). Standard order and production materials and products shall be delivered to the site before including in Application for Payment on such items.
   3. Allowances: Provide a separate line item in the Schedule of Values for each Allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by
measured quantity. Use information indicated in the Contract Documents to determine quantities.

G. The Contractor shall furnish to the Engineer at the beginning of the project an expected monthly requisition estimate for the Owner’s use in planning funding, if requested.

1.04 APPLICATIONS FOR PAYMENT


B. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.

C. Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
   1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
   2. Include amounts of Change Orders issued before last day of construction period covered by application.
   3. Include five (5) % retainage on each line of AIA Document G703, and line 5 of AIA Document G702.
      a. Five (5) % retainage shall be held on each item of work until Owner and Engineer accept Final Completion of that item.

D. Documentation: Submit proper documentation for the amounts being requisitioned from subcontractors and material suppliers with each Application for Payment if requested.

E. Electronic Draft Progress Applications for Payment shall be submitted to Engineer and Owner for review not less than 7 days before the end of the month.
   1. The period covered by each Draft Application for Payment is one month, ending on the last day of the month.
   2. Contractor shall revise and finalize Progress Application for Payment in accordance with review comments.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
   2. Submit one complete electronic copy of Application for Payment.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
   1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
4. Waiver Forms: Submit waivers of lien on University of Maine System Waiver of Lien form, executed in a manner acceptable to Owner.

H. Wage and Benefit Record of Contractor: With each Application for Payment, the Contractor and each subcontractor shall submit records for all laborers, workers, mechanics and independent contractors showing the title of the job, the hours worked, the hourly rate or other method of remuneration and the actual wages or other compensation paid to each of the laborers, workers, mechanics and independent contractors.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor's Construction Schedule (preliminary if not final).
   4. Products list.
   5. Schedule of unit prices.
   7. List of Contractor's staff assignments.
   8. List of Contractor's principal consultants.
   9. Copies of building permits and other required permits.

J. Progress Applications for Payment: Administrative actions and submittals that must precede or coincide with submittal of progress Applications for Payment include the following:
   1. Contractor's Construction Schedule update.
   2. Submittals for Work being requisitioned for are complete and approved.
   3. Completed tests, checklists, commissioning, reports, and similar requirements for the work being requisitioned for are submitted and in compliance with the Contract Documents.
   4. Minutes of previous month’s progress meeting have been distributed.

K. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion less retainage, for portion of the Work claimed as substantially complete.

L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements, record documents, operation and maintenance data, and demonstration and training.
   2. Mechanical commissioning completed and all systems in full compliance.
   3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
      a. Application for Final Payment
      b. Affidavit of Payments (AIA G706 or equal) including separate releases of waivers of lien from subcontractors and material and equipment suppliers
      c. Consent of Surety (AIA G707 or equal)
      d. Release of Liens (AIA G706A or equal)
      e. University of Maine System – Waiver of Lien
   5. Evidence that claims have been settled.
7. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. All keys and building access cards issued to Contractor for construction purposes
10. All Wage and Benefit Records

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900
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 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Coordination Drawings.
   2. Administrative and supervisory personnel.
   3. Project meetings.

B. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
   2. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-Engineering services, including establishment of benchmarks and control points.
   3. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

1.03 SUBMITTALS

A. Key Personnel Names: Within 15 days of starting construction operations, contractor shall submit a list of key personnel assignments, including superintendent and others that will be present at the project site. List shall identify individuals and their duties and responsibilities as they relate to the Project. Include physical addresses, email addresses, phone numbers and cell phone numbers.
   1. Identify 24 hour emergency contact, and back-up emergency contact.
   2. Advise Owner and Engineer immediately if any personnel or their information changes during the course of the Project.

B. Administrative and Supervisory Personnel Names: Prior to submittal of the first application for payment, contractor shall submit a list of other personnel required for proper performance of the work. List shall identify individuals and their duties and responsibilities as they relate to the Project, and shall include their contact information.

C. Project Specific Safety Program shall be submitted upon request.

D. Coordination Drawings shall be prepared if limited available space necessitates coordination to maximize space utilization, or if coordination is required for installation of products and materials fabricated by separate entities.
   1. Use only project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or 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.
      b. Indicate required installation sequences.
c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Engineer for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.04 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
   1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.
   2. Agenda: Prepare the meeting agenda unless noted otherwise. Distribute the agenda to all invited attendees.
   3. Minutes: Record significant discussions and agreements achieved, and action items and responsible parties. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.

B. Preconstruction Meeting: Owner will schedule a Preconstruction Meeting to review responsibilities, personnel assignments, procedures and site specific issues.
   1. Authorized representatives of Owner; Engineer, and their consultants; Contractor and its superintendent, major subcontractors and suppliers; and other concerned parties shall attend the meeting. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
   2. Owner will provide Agenda. Sample agenda can be found here: http://www.maine.edu/pdf/PreConstructionMtgAgenda.pdf

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
   1. Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer of scheduled meeting dates.
   2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
      b. Options.
      c. Related requests for interpretations (RFIs).
      d. Related Change Orders.
      e. Purchases.
      f. Deliveries.
      g. Submittals.
      h. Review of mockups.
      i. Possible conflicts.
      j. Time schedules.
      k. Weather limitations.
      l. Manufacturer's written recommendations.
      m. Warranty requirements.
      n. Compatibility of materials.
      o. Acceptability of substrates.
      p. Temporary facilities and controls.
q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Installation procedures.
u. Coordination with other work.
v. Required performance results.
w. Protection of adjacent work.
x. Protection of construction and personnel.
y. Record drawing process.

3. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Monthly Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time; update schedule if necessary. Discuss specific details of the upcoming month’s schedule.
   b. Application for Payment: Contractor shall bring copy of Application for Payment to meeting. Review Application for Payment and required attachments, including record drawing and documents status, waivers of mechanic's liens, wage and benefit records, list of completed tests, checklists, commissioning, reports, and similar requirements for the work are submitted and in compliance with the Contract Documents.
   c. Project Logs: Contractor shall establish, update and maintain Project Logs for the following items, at a minimum:
      1) Requests for Information or Interpretation (RFI)
      2) Submittals Schedule
      3) Change Proposals
      4) Field observations.
      5) Status of Change Orders.

E. Coordination Meetings: Conduct Project coordination meetings at weekly intervals, or as required. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. **Agenda:** Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. **Contractor's Construction Schedule:** Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
   b. **Schedule Updating:** Revise Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
   c. **Review present and future needs of each contractor present, including the following:**
      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
      7) Site utilization.
      8) Temporary facilities and controls.
      9) Work hours.
      10) Hazards and risks.
      11) Progress cleaning.
      12) Quality and work standards.
      13) Change Orders.

3. **Conduct coordination meetings with the mechanical, plumbing, sprinkler and electrical trades.** Before the trades start work in an area of the building, review structural clearances and locations of ducts, pipes, conduits, light fixtures, equipment and other items that affect location and proper fit. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components. Verify depths and clearances before fabrication of ductwork.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 013100**
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 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Preliminary Construction Schedule.
   2. Contractor's Construction Schedule.
   4. Field condition reports.
   5. Daily construction reports.
   6. Special reports.

B. Related Sections include the following:
   1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
   2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
   3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.

1.03 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Engineer.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.04 SUBMITTALS

A. Submittals Schedule: Submit schedule electronically and provide hard copies as requested.

B. Preliminary Construction Schedule: Submit electronically to Engineer and Owner and provide hard copies as requested.
   1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.

C. Contractor's Construction Schedule: Submit electronically and provide two copies of initial schedule to Engineer and Owner, large enough to show entire schedule for entire construction period.

D. Field Condition Reports: Submit electronically to Engineer and Owner at time of discovery of differing conditions.

E. Daily Construction Reports: Submit electronically to Engineer and Owner as requested.

F. Special Reports: Submit electronically to Engineer and Owner at time of unusual event.

1.05 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the Work from parties involved.
   2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.
PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.

1. Arrange the following information in tabular format to create Submittals Schedule:
   a. Specification Section number and title
      1) Include paragraph number and title if there are multiple submittals per Specification Section
   b. Scheduled date for initial submittal
   c. Actual date of initial submittal
   d. Submittal category (action or information)
   e. Name of subcontractor or supplier
   f. Scheduled date for Engineer’s final release or approval
   g. Actual date Engineer returned submittal
   h. Status of submittal (approved, approved as noted, not approved, etc.)

2. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

3. Initial Submittal: Submit concurrently with preliminary construction schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

4. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

5. The Owner will review the schedule of submittals and identify the submittals that they want to receive a copy of at the same time that the Engineer’s copies are sent out.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

   1. Contract completion date shall not be changed by submission of a schedule that shows an early or late completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

   1. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

   2. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.

   3. Startup and Testing Time: Include times for startup and testing.

   4. Mechanical Commissioning: Include adequate time and activities for mechanical commissioning activities. Coordinate milestones, events and duration of activities with Owner’s Commissioning Agent.

   5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.
C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
3. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Mechanical Commissioning, Substantial Completion, and Final Completion.

2.03 BROAD SCOPE MILESTONE SCHEDULE

A. Submit a separate general broad scope schedule to provide a basic progress report for the Owner’s use with at least ten (10) appropriate items. Examples of broad scope line items to include are: Site Work, Cast-In-Place Concrete, Framing, Rough MEP, Building Envelope, Interior Finishes, Exterior Finishes, Final MEP, Commissioning, 2 Week IAQ Flush Out, Certificate of Occupancy, LEED Documentation Progress. Update schedule on a monthly basis for submission at project meetings.

2.04 REPORTS

A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

B. Daily Construction Reports: Contractor shall maintain Daily Construction Reports on the jobsite and make them available to Owner and Engineer upon request. Daily Construction Reports shall be prepared no more than 3 days after the date the work took place. Each Daily Construction Report shall include the following at a minimum:
1. Name and location of Project and Phase if applicable
2. Name of Superintendent on site
3. Name(s) of any visitors to the site and their purpose
4. Date
5. Weather conditions
6. Name(s) of every subcontractor and/or sub-subcontractor on site that day, including
   a. Number of workers on site that day
   b. Large equipment used, such as cranes, lifts or excavators
   c. Work performed
   d. Area(s) work was performed
   e. Tests or inspections performed on work
7. Contractors’ workers on site that day, including
   a. Number of workers on site that day
   b. Large equipment used, such as cranes, lifts or excavators
   c. Work performed
   d. Area(s) work was performed
   e. Tests or inspections performed on work
8. Material deliveries
9. Any unexpected or unusual conditions
2.05 SPECIAL REPORTS

A. General: Submit special reports to Engineer within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.01 SUBMITTALS SCHEDULE

A. Contractor shall update the Submittals Schedule (Log) continuously to insure that items are not misplaced. Updates shall include:
   1. Actual dates items were submitted
   2. Actual dates items were returned by Engineer
   3. Status of submittal (approved, approved as noted, not approved, etc.)

B. Distribution: Distribute copies of updated Submittals Schedule (Log) at Monthly Progress Meetings and Coordination Meetings, at a minimum.

3.02 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled Monthly Progress Meeting.
   1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
   2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
   3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200
SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural
   requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:
   1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the
      schedule of values.
   2. Section 013200 "Construction Progress Documentation" for submitting schedules and
      reports, including Contractor's construction schedule.
   3. Section 017823 "Operation and Maintenance Data" for submitting operation and
      maintenance manuals.
   4. Section 017839 "Project Record Documents" for submitting record Drawings, record
      Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require
   Engineer's responsive action. Action submittals are those submittals indicated in individual
   Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not
   require Engineer's responsive action. Submittals may be rejected for not complying with
   requirements. Informational submittals are those submittals indicated in individual
   Specification Sections as "informational submittals."

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be
   provided by Engineer for Contractor's use in preparing submittals.
   1. Engineer will furnish Contractor one set of digital data drawing files of the Contract
      Drawings for use in preparing Shop Drawings and Project record drawings.
      a. Engineer makes no representations as to the accuracy or completeness of digital
         data drawing files as they relate to the Contract Drawings.

B. Coordination: Coordinate preparation and processing of submittals with performance of
   construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other
      submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless
      partial submittals for portions of the Work are indicated on approved submittal schedule.
   3. Submit action submittals and informational submittals required by the same Specification
      Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
   a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
   3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
   1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
   2. Name file with submittal number or other unique identifier, including revision identifier. 
      a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). 
         Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
   3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.
   4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Owner, containing the following information:
      a. Project name.
      b. Date.
      c. Name and address of Engineer.
      d. Name of General Contractor / Construction Manager.
      e. Name of Contractor.
      f. Name of firm or entity that prepared submittal.
      g. Names of subcontractor, manufacturer, and supplier.
      h. Category and type of submittal.
      i. Submittal purpose and description.
      j. Specification Section number and title.
      k. Specification paragraph number or drawing designation and generic name for each of multiple items.
      l. Drawing number and detail references, as appropriate.
      m. Location(s) where product is to be installed, as appropriate.
      n. Related physical samples submitted directly.
      o. Indication of full or partial submittal.
      p. Transmittal number, numbered consecutively.
      q. Submittal and transmittal distribution record.
      r. Other necessary identification.
      s. Remarks.
E. Options: Identify options requiring selection by Engineer.

F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
   a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
   b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's product specifications.
   c. Standard color charts.
   d. Statement of compliance with specified referenced standards.
   e. Testing by recognized testing agency.
   f. Application of testing agency labels and seals.
   g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams showing factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
   e. Lockout -Tagout procedures for maintenance of equipment

5. Submit Product Data before or concurrent with Samples.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineer's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional Engineer if specified.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
   e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of
color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
   1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
   1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
   2. Manufacturer and product name, and model number if applicable.
   3. Number and name of room or space.
   4. Location within room or space.

F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.

G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

M. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on
evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

N. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

O. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

P. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

Q. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

R. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 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 Engineer.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file, 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.
PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER’S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Engineer.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents will be returned by the Engineer without action.

END OF SECTION 013300
SECTION 015000 - 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 1 Specification Sections, apply to this Section.
   1. Refer to Appendix for specific requirements of this Project approved by the authorities
      having jurisdiction (AHJ).

1.02 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary
   utilities, support facilities, and security and protection facilities.

B. Temporary utilities include, but are not limited to, the following:
   1. Water service.
   2. Sanitary facilities, including toilets, and drinking-water facilities.
   3. Ventilation.
   4. Electric power service.
   5. Lighting.
   6. Telephone service.
   7. Internet service.

C. Support facilities include, but are not limited to, the following:
   1. Waste disposal facilities.
   2. Field office.
   3. Lifts and hoists.
   4. Construction aids and miscellaneous services and facilities.
   5. Snow removal.

D. Security and protection facilities include, but are not limited to, the following:
   1. Environmental protection.
   2. Tree and plant protection.
   3. Perimeter enclosure fence for the site.
   5. Barricades, warning signs, and lights.
   6. Covered walkways.
   7. Temporary enclosures.
   8. Fire protection.

E. Related Sections include the following:
   1. Division 01 Section "Submittal Procedures" for procedures for submitting copies of
      implementation and termination schedule and utility reports.
   2. Division 01 Section “Construction Waste Management” for handling and processing
      construction debris.
   3. Division 01 Section "Execution Requirements" for progress cleaning requirements.
   4. Divisions 02 through 33 for temporary heat, ventilation, and humidity requirements for
      products in those Sections.
1.03 USE CHARGES
1. Electric Power Service and Water Service: The use of existing power and water will be allowed for Work.

1.04 QUALITY ASSURANCE
A. The Contractor is responsible for the implementation, monitoring, and maintenance of job site safety program for the duration of the contract.

1.05 PROJECT CONDITIONS
A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
   1. Temporary Use of Permanent Facilities: Installer of each permanent service shall 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. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
   1. Keep temporary services and facilities clean and neat.
   2. Relocate temporary services and facilities as required by progress of the Work.

C. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site. Comply with State and local noise ordinances.
   1. Comply with Owner’s requirements during hours when classes are being held.

PART 2 - PRODUCTS

2.01 MATERIALS
A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.

B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."

C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

D. Water: Potable.

2.02 EQUIPMENT
A. General: Provide equipment suitable for use intended.

B. Field Offices: Jobsite trailer will be permitted.

C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

G. Lamps and Light Fixtures: Provide general service lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

H. Security Fence: Perimeter security fencing shall be minimum 4 feet high, orange tensor fencing with post supports to maintain position. Provide access and entry control gates for vehicle traffic and workers as necessary.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
   1. Coordinate with the Engineer and Owner at the preconstruction meeting.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. Water Service: Obtain water required for the work from location designated by the Owner.

B. Electrical Service: Provide required power cords and connect to existing power supply.

C. Sanitary Facilities: Provide temporary toilets and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
   1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
   2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
   3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
   4. Use of the Owner's existing toilet facilities will not be permitted.

D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
E. Telephone Service: Provide temporary cellular telephone service with voice mail throughout construction period.

F. Internet Service: Provide laptop computer service for daily use at the site. Wireless internet connection is available at the site for the contractor’s use.

3.03 SUPPORT FACILITIES INSTALLATION

A. Construction and Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
   1. Provide separate containers, clearly labeled, for each type of waste material to be deposited.
   2. Comply with Section “Construction Waste Management.”

B. Contractor’s Field Office: Contractor will be permitted to bring a jobsite trailer to the site.
   1. The Contractor is responsible for cleaning of their floors, including access routes to the office area, and emptying trash.

C. Lifts and Hoists: Provide facilities for hoisting materials and personnel. 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 in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage.

C. Security Fence: Before work begins, install an enclosure fence at exterior construction area where work occurs. Provide access and entry control gates for vehicle traffic and workers as necessary. Fencing shall be such to limit access to the work area by pedestrian traffic around the site. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
   1. Locate fence so as to not hinder site work or progress on the building. Relocate without additional expense as needed during progress of the work.
   2. Provide signage to warn people to “keep out” and area is dangerous to non-construction personnel. Locate signs as recommended by AGC and USM requirements.

D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of the building. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

E. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning
signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from unauthorized entry, exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

G. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241. Comply with USM campus requirements.
   1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
      a. Field Offices: Class A stored-pressure water-type extinguishers.
      b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
      c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.
   2. Store combustible materials in containers in fire-safe locations.
   3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
   4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
   5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
   6. Develop and supervise an overall fire-prevention and first-aid fire-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.

H. Covered Walkway: Erect a structurally adequate, protective covered walkway for passage of persons at exits from the building with potential danger from falling objects. Comply with regulations of authorities having jurisdiction.

3.05 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
   2. Snow removal: Provide snow removal necessary to do the work and maintain access to materials and temporary facilities

C. Flooring Protection: Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during construction period. Use protection methods indicated or recommended by flooring manufacturer.
1. Cover flooring with undyed, untreated building paper at high traffic areas until inspection for Substantial Completion.
2. Do not move heavy and sharp objects directly over flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

D. Restoration of Roadways and Pavement: Roadways, pavements and curbs that are broken, damaged, settled, or otherwise defective as a result of receiving, handling, storage of materials or the performance of any work under this Contract, shall be fully restored to the satisfaction of the authorities having jurisdiction.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 015000
SECTION 017300 – EXECUTION REQUIREMENTS

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. Refer to Appendix for specific requirements of this Project approved by the authorities having jurisdiction (AHJ).

1.02 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work.

B. Related Requirements:
   1. Section 011000 "Summary" for limits on use of Project site.
   2. Section 013300 "Submittal Procedures" for submitting surveys.
   3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.03 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.04 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, notify Engineer of locations and details of cutting and await directions from Engineer before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
   4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Engineer.

3.03 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.04 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
   5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
      a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
      b. Restore damaged pipe covering to its original condition.
   3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.05 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

3.06 STARTING AND ADJUSTING

1. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

2. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
3. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

END OF SECTION 017300
SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Salvaging nonhazardous demolition and construction waste.
   2. Recycling nonhazardous demolition and construction waste.
   3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
   1. Section 024119 "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
   2. Refer to drawings for additional information.

1.03 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Reused or Salvaged: Recovery of demolition or construction waste and subsequent sale, donation, or reuse in another facility or incorporated into the Work.

F. Universal Waste: Any waste designated by the Maine Department of Environmental Protection as Universal Waste i.e. fluorescent lamps, ballasts, thermostats and other lead and mercury containing devices. Information can be found on the DEP’s website: https://www1.maine.gov/dep/waste/hazardouswaste/index.html

G. USM Waste Minimization Policy: This policy and additional Information on recycling and waste can be found on the USM Recycling Website:
   http://www.usm.maine.edu/sustainability/recycling

1.04 PERFORMANCE REQUIREMENTS

A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and
incinerators by sorting prior to leaving the jobsite. Facilitate recycling and salvage of materials. All waste must be disposed of at facilities that operate in accordance with all local, state, and federal waste regulations. Documentation of compliance can be requested by the University of Southern Maine at any time.

1.05 SUBMITTALS

A. Submit ‘Anticipated Project Waste Sheet’ before commencement of work.

B. Submit ‘Waste Reporting Sheet’ monthly with each Pay Requisition during the course of the project and prior to Final Requisition.
   1. Include the following information on Waste Reporting Sheet:
      a. Date of disposal
      b. Type of material(s)
      c. Method(s) of disposal: recycled, reused/salvaged, landfilled, incinerated.
      d. Weight(s): attach copies of scale tickets to form (see below)

C. Copies of scale tickets from waste facilities, including transfer and processing facilities, for each haul must be attached to monthly ‘Project Waste Sheet’ on which the waste is listed.

D. Copies of Certificates of Recycling from DEP-approved consolidators for all hauls over the course of the project which involved Universal Waste must be attached to final Waste Reporting Sheet at conclusion of project.

E. Copy of Certificate of Refrigerant Recovery must be attached to Waste Reporting Sheet on which device is listed. Refrigerant Recovery must be performed by an EPA-approved Refrigerant Recovery Technician.

1.06 QUALITY ASSURANCE

A. Contractors must designate someone in their employ (a direct paid employee of the general contractor) to be the contact for waste reporting for the duration of the project.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
   1. For any questions or clarifications of waste handling procedures contact the USM project manager directly.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 RECYCLING / SALVAGING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers in accordance with USM Waste Minimization policy.

B. Preparation of Waste: Prepare and maintain recyclable and salvageable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling or reusing process.
C. Procedures: Separate recyclable and salvageable waste from other waste materials, trash, and debris. Sort recyclable waste by type at Project site to the maximum extent practical.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
   2. Inspect containers and bins for contamination and remove contaminated materials if found.

3.02 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged/reused or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

END OF SECTION 017419
Anticipated Project Waste Sheet

Building, Campus: __________________________ Project Name: ______________________________________________________

Company Name: __________________________________________ Project Number: ________________________________

Designated Contact: ______________________________________ Phone: _____________________ Date: ____________

List types of waste materials anticipated throughout the duration of the project. Include demolition waste, bulky waste, product packaging, and anything generated that will need to be disposed of. Complete a second sheet if additional space is necessary. Include estimates of quantities, if able. In the second column describe proposed method of disposal, if known. In the third column estimate when the waste will be generated over the duration of the project.

<table>
<thead>
<tr>
<th>Waste Materials / Quantities</th>
<th>Method of Disposal</th>
<th>Week # / Date</th>
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Questions: contact Steve Sweeney, Resource Recovery Supervisor, USM Facilities Management: (207) 780-4160
Waste Reporting Sheet

Building, Campus: __________________________ Name of Project: __________________________

Company Name: ___________________________ Project Number: ___________________________

Designated Contact: _________________________ Phone: _________________________ Date: ______

This form must be filled out and submitted monthly with each Pay Requisition throughout the duration of the project and once prior to Final Requisition. Attach all scale tickets for items listed on the form.

Disposal: Recycled, Reused, Salvaged, Donated, Incinerated, Landfilled. Include packaging material.

Project waste generated:

<table>
<thead>
<tr>
<th>Date</th>
<th>Material</th>
<th>Weight</th>
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SECTION 017700 - CLOSEOUT PROCEDURES

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 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Inspection procedures.
   2. Warranties.
   3. Final cleaning.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
   2. Division 01 Section "Execution Requirements" for progress cleaning of Project site.
   3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   4. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
   5. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.03 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Prepare and submit Project Record Documents, operation and maintenance manuals.
   6. Submit final checklists, schedules and reports in accordance with specification sections.
   7. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   8. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   9. Complete startup testing of systems.
   10. Submit test/adjust/balance records.
   11. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   13. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
14. Complete final cleaning requirements, including touchup painting.
15. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
16. Submit initial draft copy of operation and maintenance manuals at least 15 days before requesting inspection for Substantial Completion.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer 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 Engineer, that must be completed or corrected before certificate will be issued.
   1. Reinspection: 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.

1.04 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
   2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.05 INSPECTION FEES

A. If the Engineer performs reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor, or, should the Contractor fail to complete the work, or, should the Contractor fail to promptly correct warranty items or work later found to be deficient:
   1. Owner will compensate Engineer for such additional services.
   2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

B. If the Work is not completed by the date set in the Agreement, and the Engineer needs to perform additional Contract Administrative and on site observation duties:
   1. Owner will compensate Engineer for such additional services.
   2. Owner will deduct the amount of such compensation from the final payment to the Contractor.
1.06  LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit electronic and three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Engineer.
      d. Name of Contractor.
      e. Page number.

1.07  WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated in the contract documents.
   1. Unless indicated otherwise, all warranties shall commence on the date of Substantial Completion.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Submit final warranties as a package for the entire project, assembled and identified as described below.
   2. Bind warranties and bonds in heavy-duty, D-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents but not greater than 2 inches, and sized to receive 8-1/2-by-11-inch paper. Do not over fill D-ring, allowing 1/2-inch space for future additions.
   3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
   5. Electronic Media: Submit copy of warranty binder on CD-R or thumbdrive in .PDF format. Bookmark based on the table of contents, and for each warranty within each section.

D. Provide additional electronic media copies of each warranty to include in operation and maintenance manuals.
PART 2 - PRODUCTS

2.01 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 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. Remove snow and ice to provide safe access to building.
   f. 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.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   j. Resilient flooring shall be scrubbed and cleaned with cleaner recommended by the flooring manufacturer just prior to occupation by Owner. No-wax floors shall be buffed in accordance with flooring manufacturer’s requirements.
   k. Floors to receive wax shall be waxed just prior to occupation by Owner. Waxing shall consist of three coats, properly buffed to a uniform sheen. Work shall be done by a floor care subcontractor. Coordinate selection of wax with flooring manufacturer and Owner’s maintenance program.
   l. 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.
   m. Remove labels that are not permanent.
n. 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.
o. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
p. Replace parts subject to unusual operating conditions.
q. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
r. Replace disposable air filters and clean permanent air filters that are exposed to the work. Clean exposed surfaces of diffusers, registers, and grills.
s. Clean ducts, blowers, and coils if units were operated without filters during construction.
t. 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.
u. 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.
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 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory.
   2. Operation manuals for systems, subsystems, and equipment.
   3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. Related Sections include the following:
   1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
   2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
   3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
   4. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.03 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.04 SUBMITTALS

A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Engineer will review concurrently with Owner for comment. Engineer will return copy of draft and mark whether general scope and content of manual are acceptable.

B. Final Submittal: Submit electronic and 2 copies of each manual in final form at least 15 days before final inspection. Engineer will review concurrently with Owner for comment. Engineer will return copy with comments after final inspection.
   1. Correct or modify each manual to comply with comments. Submit copies of each corrected manual within 15 days of receipt of Engineer's comments.

C. Preliminary Operation and Maintenance Manual Summary: Submit two copies concurrently with the submittal of the Schedule of Values in accordance with Division 01 section, "Submittal Procedures."
1.05 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Organization: Include a section in the directory for each of the following:
   1. List of documents.
   2. List of systems.
   3. List of equipment.
   4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.02 MANUALS, GENERAL

A. 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:
   1. Title page.
   2. Table of contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name, address, and telephone number of Contractor and primary subcontractors.
   6. Name and address of Engineer.
   7. Cross-reference to related systems in other operation and maintenance manuals.

C. 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.
1. 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.

D. 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.
   1. Binders: Heavy-duty, D-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents but not greater than 2 inches, 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. Do not overfill D-ring, allowing 1/2-inch space for future additions.
      a. 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.
      b. 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.
   2. 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.
   3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
   5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
      a. Maximum size of drawings to be included in the binders shall not exceed 11-by-17-inch. Fold drawings to same size as text pages and use as foldouts.
      b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and submit envelopes with manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

E. Electronic Media: Submit one copy of each complete manual, including Record Shop Drawings and Product Data on CD-R or thumbdrive in .PDF format. Bookmark based on the specifications table of contents and manual dividers.

F. Follow ASHRAE Guideline 4 - 2008 in the preparation of operating and maintenance documentation.

2.03 OPERATION MANUALS

A. Content: Daily operations and management of systems and equipment. In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions.
   2. Performance and design criteria if Contractor is delegated design responsibility.
   3. Operating standards.
   4. Operating procedures.
   5. Operating logs.
   6. Wiring diagrams.
   7. Control diagrams.
   8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:
1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.
10. Lockout-Tagout procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

F. Emergency Instructions and Procedures: 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. Include the following as applicable:
1. Instructions on stopping
2. Shutdown instructions for each type of emergency
3. Operating instruction for conditions outside normal operating limits
4. Required sequences for electric or electronic systems
5. Special operating instructions and procedures

2.04 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product 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.

C. Product Information: Include the following, as applicable:
1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
   1. Inspection procedures.
   2. Types of cleaning agents to be used and methods of cleaning.
   3. List of cleaning agents and methods of cleaning detrimental to product.
   4. Schedule for routine cleaning and maintenance.
   5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

2.05 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. 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.

B. 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.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
   1. Standard printed maintenance instructions and bulletins.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.
   6. Demonstration and training videotape, if available.
   7. Lockout-Tagout procedures.

E. 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.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. 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.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.01 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. 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.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. 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.
   1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
   2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. 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.
   1. 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.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
   1. Do not use original Project Record Documents as part of operation and maintenance manuals.
G. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823
SECTION 017839 - PROJECT RECORD DOCUMENTS

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 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.
   4. Record Shop Drawings.

B. Related Sections include the following:
   1. Division 01 Section "Closeout Procedures" for general closeout procedures.
   2. Division 01 Section “Operation and Maintenance Data”.
   3. Divisions 02 through 33 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.03 SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit copies of Record Drawings as follows:
      a. Submit one set(s) of marked-up Record Prints and one copy electronically in PDF format.

B. Record Specifications: Submit one hard copy and one copy on electronic media of Project's Specifications, including addenda and contract modifications.

C. Record Shop Drawings and Product Data: Submit one hard copy and one copy on electronic media of each Product Data submittal.
   1. Where Record Shop Drawings and Product Data is required as part of operation and maintenance manuals, submit marked-up Shop Drawings and Product Data as an insert in manual instead of submittal as Record Shop Drawings and Product Data. Insert typewritten pages indicating drawing titles, descriptions of contents, and Record Shop Drawings and Product Data locations that are part of operation and maintenance manuals.
   2. Electronic Media: In addition to paper copy, submit record copy of record Shop Drawings and Product Data specification in electronic .PDF format. Bookmark Product Data based on the table of contents.

D. Directories: Material supplier directory and subcontractor directory.

PART 2 - PRODUCTS

2.01 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. 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.
   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Accurately record information in an understandable drawing technique.
   c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:
   a. Dimensional changes to Drawings.
   b. Revisions to details shown on Drawings.
   c. Depths of foundations below first floor.
   d. Locations and depths of underground and under slab utilities.
   e. Revisions to routing of piping and conduits.
   f. Revisions to electrical circuitry.
   g. Actual equipment locations.
   h. Duct size and routing.
   i. Locations of concealed internal utilities.
   j. Changes made by Change Order or Construction Change Directive.
   k. Changes made following Engineer's written orders.
   l. Changes made by field sketches and supplemental drawings.
   m. Changes made as a result of requests for information (RFI).
   n. Details not on the original Contract Drawings.
   o. Field records for variable and concealed conditions.
   p. Record information on the Work that is shown only schematically.

3. 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.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
   1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2.02 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions, change orders and product options selected.
   3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
   4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.03 RECORD SHOP DRAWINGS AND PRODUCT DATA

A. Preparation: Mark Shop Drawings and Product Data to indicate the actual product installation where installation varies substantially from that indicated in Shop Drawings and Product Data submittal.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
   3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
   4. Bind product data in heavy-duty, D-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents but not greater than 2 inches, and sized to receive 8-1/2-by-11-inch paper. Do not over fill D-ring, allowing 1/2 inch space for future additions.
   5. Provide heavy paper dividers with plastic-covered tabs for each specification section with product data. Mark tab to identify the specification section. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   6. Identify each binder on the front and spine with the typed or printed title "PRODUCT DATA," Project name, and name of Contractor.
   7. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
      a. Maximum size of drawings to be included in the binders shall not exceed 11-by-17-inch. Fold drawings to same size as text pages and use as foldouts.
      b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and submit envelopes with manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
   8. Electronic Media: Submit record copy of marked-up Shop Drawings and Product Data in electronic .PDF format. Bookmark based on the table of contents, and for each Shop Drawings and Product Data within each section. Where Record Shop Drawings and Product Data is required as part of operation and maintenance manuals, submit electronic media of marked-up Shop Drawings and Product Data as part of manual instead of submittal as Record Shop Drawings and Product Data.

2.04 MISCELLANEOUS RECORD SUBMITTALS

A. 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.

B. Subcontractor Directory: Name, address and telephone number for all major subcontractors, organized by specification section.

C. Material Supplier Directory: Name, address and telephone number for major material suppliers, organized by specification section.
PART 3 - EXECUTION

3.01 RECORDING AND MAINTENANCE

A. 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.

B. 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 Engineer's reference during normal working hours.

END OF SECTION 017839
SECTION 02 41 14

SELECTIVE SITE DEMOLITION AND RESTORATION

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Site demolition including ordinary excavation of existing bituminous or cement concrete pavements, soils, foundations, bituminous or cement concrete curbs, bituminous or cement concrete sidewalks, grassed areas, demolition, dismantling, replacement and restoration Work, stacking and disposal of reusable materials and surplus waste, removal of drainage structures, and tree protection in accordance with this Section.

2. Removal and protection of granite curb for reuse as indicated on the Drawings.

1.02 REFERENCES

A. Reference Standards:


2. Division 31 Specifications – Earthwork.


1.03 SITE CONDITIONS

A. Before beginning Work, perform a site walk to observe and document existing site conditions. Site features not indicated for removal on the Drawings shall be protected during construction. Site features damaged during construction shall be restored to their original condition at no additional cost to the Owner.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

A. Perform selective Site demolition in accordance with Division 200 of the MaineDOT Standard Specifications and the Drawings.
B. Comply with the General Requirements for temporary construction controls, protections, and waste disposal.

1. Ensure against damage or injury to buildings, occupants, and adjacent property from falling debris or other causes. Avoid damage to adjacent areas, facilities, and appurtenances.

2. Maintain free and safe passage to and from the Site.

3. Legally dispose of waste, surplus and unsatisfactory materials including bituminous or cement concrete, debris, piping, common excavation, cold planing, and reclamation immediately as it accumulates during the course of the demolition work and other Site preparation. Burying is not allowed.

3.02 SITE DEMOLITION

A. Clear the Site of construction debris and waste materials, including broken concrete and pipes within the limits of Work as shown on the Drawings or as directed.

B. Strip and/or excavate existing bituminous or cement concrete pavements, soils, foundations, bituminous or cement concrete curbs, bituminous or cement concrete sidewalks, grassed areas.

C. Remove and stack fencing, signs, guardrails, poles, granite curb and other usable materials to be reinstalled.

D. Demolish and remove existing bituminous pavement, bituminous and concrete walkways, bituminous and concrete curbing, grass borders and landscaping as necessary to construct the project. Remove existing obstructions and debris, and other unsuitable materials above, at, or below grade that may interfere with or obstruct the new Work, whether or not shown on the Drawings.

E. All forest duff, organics, and soils containing organics should be removed from beneath the proposed paved and fill areas.

F. Remove and stockpile topsoil and other materials for reuse as specified in Section 31 10 00 or as directed by the Engineer.

G. Stockpile recovered materials acceptable to the Engineer to be reused on the Project and protect against damage or deterioration.

H. Do not cut, remove, destroy, or trim trees and shrubs unless specifically marked or permitted. Do not remove tree branches using excavating equipment. Any required trimming shall be performed by a licensed arborist. Protect trees and vegetation outside the limits of the Work area.
I. Protect integrity of remaining structures, appurtenances, and equipment during demolition, removal, and alteration to existing structures, appurtenances, utility pipes, castings, fences, walkways, posts, and other physical features.

J. Maintain slopes longitudinally and laterally to ensure proper and continuous drainage. Field adjust sidewalk and roadway gutter grades at driveways and side street intersections to be consistent with the existing drainage pattern and provide for an appropriate transition between the new and the existing side streets and driveways pavement surfaces at intersections.

K. Remove drainage structures identified in accordance with Section 202 of the MaineDOT Standard Specifications and the Drawings.
   1. Remove and stack castings (frames, covers and grates).
      a. Legally dispose of castings deemed not serviceable by Engineer at no additional cost.
   2. Plug inlets and outlets and remove masonry and concrete.
   3. Remove and dispose of underground piping as indicated on the Drawings.

3.03 SAWCUTS IN EXISTING PAVEMENTS AND SIDEWALKS

A. Neatly saw cut edges of excavations in existing pavements and sidewalks along either a straight line or design curved line as shown in the Drawings. Ragged, uneven edges are not acceptable.

B. Saw cut existing pavement through its full depth, or to the elevation of the abutting proposed pavement subgrade, whichever is lesser, at joints between existing and proposed pavements, and at utility trenches through existing pavement to remain, to provide a uniform, vertical surface for the proposed pavement joint with the existing pavement.

C. Neatly saw cut edges that become broken, ragged or undermined with a minimum disturbance to remaining pavements or sidewalks prior to the placement of abutting proposed pavement.

D. In areas where an existing concrete sidewalk abuts a building, and the sidewalk is to be reconstructed or removed, saw cut the existing sidewalk a minimum of six inches from the building wall, unless otherwise directed by the Engineer.

E. Spray or paint saw cut surfaces with a uniform thin coat of RS-1 asphalt emulsion immediately before placement of hot mix asphalt material against the surface.
3.04 REPAIR, REPLACEMENT AND RESTORATION

A. Match materials of repair or restoration to existing adjacent surfaces in finish and texture as closely as possible. Make joints between new and existing Work inconspicuous.

B. Replace or restore items damaged, dislocated or dismantled such as fences, signs, poles, bollards, curb stones, markers, trees, bushes, grassed areas, walkways, outside lighting and other amenities and physical features designated to remain, to conditions that existed prior to the start of construction.

END OF SECTION
SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide the labor, tools, equipment, and materials necessary to furnish and install all electrical work as specified herein and in accordance with the Drawings and applicable reference standards listed in Article 1.03.

2. In general, electrical Work shall include but not be limited to the following:

a. Power distribution equipment or modifications as identified on the Contract Drawings

b. Power outlets and equipment connections as identified on the Contract Drawings

c. Wiring devices as identified on the Contract Drawings

d. Lighting – Exterior Parking Lot

e. All support material and hardware for raceway and electrical equipment

f. Branch circuit wiring

g. Underground electrical construction. All excavation, backfill, surface restoration, and concrete and rebar work shall be provided by the General Contractor. Manholes, Handholes, conduit, and conduit spacers/supports shall be provided by the Electrical Contractor.

h. Installation, termination & labeling of all cable wiring.

i. Building wall, floor and roof penetrations for raceways

j. Start up, acceptance testing test reports and instruction of systems operation to the Owner

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards
1. Electrical equipment, materials, installation and workmanship shall comply with all state and local building codes, safety and fire law Regulations at the location of the Work and shall conform to the latest edition of the applicable codes and standards of the organizations listed:

   a. National Electrical Code (NEC)
   b. Underwriters' Laboratories (UL)
   c. Institute of Electrical and Electronics Engineers (IEEE C2)
   d. American National Standards Institute, Inc. (ANSI)
   e. National Fire Protection Association (NFPA)
   f. National Electrical Manufacturers Association (NEMA)
   g. Insulated Power Cable Engineers Association (IPCEA)
   h. Association of Edison Illuminating Companies (AEIC)
   i. Occupational Safety Health Act (OSHA)
   j. Americans with Disabilities Act (ADA)

2. Where the Contract requires the Work or any part of the same, to be above the standards required by applicable Laws, ordinances, rules and Regulations and other statutory provisions pertaining to the Work, such Work shall be performed and completed in accordance with the Contract requirements.

3. Should any changes in the Specifications and Drawings be necessary to conform to the requirements of any of the above mentioned codes or standards, the Contractor shall so notify the Owner’s Representative.

B. Drawings required by Governing Authorities: Prepare any detailed diagrams or Drawings which may be required by the governing authorities.

C. Permits, Certificates, Inspections, Fees and Utility Costs:

   1. The Contractor shall obtain and make payments for all permits, licenses, and certificates that are required for the associated Work.

   2. Following completion of the Work, the Contractor shall obtain certificates of approval from the responsible agencies concerned with the Work.

   3. Arrange for timely inspections required for Work under this section.

   4. All utility company and municipal back charges shall be the responsibility of the Owner. Cost of electricity shall be borne by the Contractor until substantial completion as determined by the Owner.
1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

B. The electrical work shall be coordinated with the Work of other trades to prevent interferences and so that the progress in construction of the building will in no way be retarded.

C. Coordinate with all local utility companies and make all installations for their services in accordance with all utility company requirements.

D. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, furnish and install all required supports and wiring to clear the encroachment for a complete installation.

E. Any Work installed contrary to or without acceptance by the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed to the Contractor for making these changes.

1.05 SUBMITTALS

A. Submit in accordance with Division 01 Submittal Procedures.

B. Furnish manufacturer's product data, test reports, and materials certifications as required.

C. Follow the procedures specified in Division 01 Section Submittal Procedures and in addition, the Contractor shall prepare and submit a complete submittal list to the Engineer. The submittal list shall include all submittal items covered in the Division 26 Specification sections.

D. Shop Drawings shall be submitted to the General Contractor who shall review and approve them prior to submittal to the Engineer for approval. Shop Drawings shall identify the specific equipment and material being supplied; the quantity being supplied; and all accessories, dimensions, descriptions, mounting and connection details, wiring diagrams, elementary control diagrams, equipment interface diagrams and any other information necessary to determine compliance with the Plans and Specifications. Fabrication and installation shall be in accordance with the approved Shop Drawings.

E. As-built copies of all Shop Drawings shall be submitted to the Engineer.

F. Submit copies of reports, permits, and easements necessary for installation, use, and operation.

G. Submit copies of reports of tests, inspections, and meter readings as specified.
1.06 QUALITY ASSURANCE
   A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING
   A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS
   A. Existing Conditions: per Division 01 General Requirements.

1.09 WARRANTY
   A. Special Warranty/Extended Correction Period
   B. Compile and assemble the warranties specified in Division 26 into a separate set of vinyl covered three ring binders, tabulated and indexed for easy reference.
   C. Provide complete warranty information for each item. Information to include:
      1. Product or equipment list
      2. Date of beginning of warranty or bond
      3. Duration of warranty or bond
      4. Names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services

1.10 DRAWINGS
   A. The Specifications supplement the Drawings and provide information pertaining to the methods and materials to be used in the execution of the Work. When a discrepancy occurs between the two, the stricter of the two shall govern.
   B. All electrical equipment such as junction and pull boxes, panelboards, switches, controls and such other apparatus as may require maintenance and operation from time to time shall be made easily accessible and properly labeled.
   C. The Contractor shall examine all Contracts and reference Drawings, and verify and properly coordinate the placement of outlets. Contractor shall also check all Drawings including mechanical Drawings and Shop Drawings for apparatus for which he must rough-in and to which he must connect.

1.11 RECORD DRAWINGS
   A. The Contractor shall maintain a complete and separate set of prints of Drawings and Specifications at job Site for duration of the Contract. The Contractor shall
record Work completed and all changes from original Contract. Drawings shall clearly and accurately include Work installed as a modification or as an addition to the original design.

B. At completion of Work and prior to final request for payment, the Contractor shall submit a complete set of reproducible Record Drawings showing all systems as actually installed.

1.12 JOB CONDITIONS

A. Existing Conditions

1. Existing Utilities: Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.

2. Prior to all Work of this section, carefully inspect the installed Work of all other trades and verify that all such Work is complete to the point where this installation may properly commence.

3. Verify that the electrical installation may be made in complete accordance with all pertinent codes and Regulations and the original design.

B. Coordination:

1. Coordinate the installation of electrical items with the schedules for Work of other trades to prevent unnecessary delays in the total Work.

2. Coordinate with all local utility companies and make all installations for their services in accordance with all utility company requirements.

3. Any changes shall be done at the Contractor’s expense.

4. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, furnish and install all required supports and wiring to clear the encroachment for a complete installation.

5. Any Work installed contrary to or without acceptance by the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed to the Contractor for making these changes.

C. Accuracy of Data:

1. The Drawings are diagrammatic and functional only, and are not intended to show exact circuit layouts, number of fittings, components and place in satisfactory operational power, lighting, and other electrical systems shown. Install additional circuits, components and material wherever
needed to conform to the specific requirements of the equipment whether or not indicated or specified.

2. Information and components called for in the Specification but not shown on Plans or vise-versa shall apply and shall be provided as though required expressly by both.

3. The locations of equipment, fixtures, outlets and similar devices shown on the Drawings are approximate only. Field measurements shall take precedence over scaled dimensions from Drawings. Exact locations shall be as accepted by Engineer during construction. Obtain in the field all information relevant to the placing of electrical work and, in case of any interference with other Work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the Work in an acceptable manner.

4. The Drawings and the Specifications are intended to comply with all pertinent codes, Regulations and standards. In the event of discrepancy, the Contractor shall immediately notify the Engineer in writing of said discrepancies and apply for an interpretation and, unless an interpretation is offered in writing by the Engineer prior to the execution of the Contract, the applicable rules and Regulations shall be complied with as a part of the Contract.

5. In case of difference between building codes, Specifications, state Laws, industry standards and the Contract Documents, the most stringent shall govern. Should the Contractor perform any Work that does not comply with the requirements of the applicable building codes, state Laws, and industry standards, he shall bear all cost arising in correcting these deficiencies.

6. Verify size and ratings of motors and other electrically operated devices supplied by others.

7. Check with Engineer before installation of Work for outlets not specified as to location or for Work that interferes with other trades.

1.13 FLASHING, CUTTING, FIREPROOFING AND WATERPROOFING

A. Flashing around all electrical items penetrating roof or exterior walls shall be the responsibility of the Electrical Contractor.

B. All cutting of surfaces, including core drilling of walls and slabs, shall be done by the Electrical Contractor.

C. Patching shall be done by the Electrical Contractor.
D. The Electrical Contractor shall fireproof, waterproof and seal all openings in slabs and walls.

1.14 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Use all means necessary to protect electrical system materials before, during and after installation and to protect the installed Work and materials of all other trades.

B. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Engineer and at no additional cost to the Owner. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through such special tests as directed by the Engineer, at the cost and expense of the Contractor, or shall be replaced by the Contractor at his own expense.

C. Protect the Work of other trades. Restore any damage caused to other trades to the condition existing prior to damage at no additional cost to the Owner.

D. Investigate each space in the building through which equipment must pass to reach its final location. If necessary, the manufacture shall be required to ship his material in sections sized to permit passing through such restricted areas in the building.

1.15 WORK PERFORMANCE

A. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required Work, the following requirements are mandatory:

1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.

2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.

3. Before initiating any Work, a job specific Work plan must be developed by the Contractor and the Owner. The Work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, and safety equipment to be used and exit pathways.

4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Owner.
1.16 DEFINITIONS

A. As used in this Specification, “provide” means “furnish and install”, “furnish” means “to purchase and deliver to the Project Site complete with every necessary appurtenance and support and to store in a secure area in accordance with manufacturer’s instructions”, and “install” means “to unload at the delivery point at the Site or retrieve from storage, move to point of installation and perform every operation necessary to establish secure mounting and correct operation at the proper location in the Project”.

B. Finished Areas: In general, areas with carpet or tile floors, lay-in or fixed ceiling tile, special architectural ceiling treatment, or tiled, plastered, or paneled walls shall be considered finished areas.

C. Interior: For the purposes of this Specification, interior is any area within the boundaries of the foundation of any building within the superstructure or other structures not classified as a building.

1.17 TEMPORARY POWER

A. The Contractor shall furnish, install, maintain, and remove the temporary electrical power and lighting systems, including lamps, and pay for all labor, materials, and equipment required therefore. All such temporary electrical work shall meet the requirements of the National Electrical Code, the local utility company, and OSHA.

B. The Contractor shall make all necessary arrangements with the local utility company as to where the temporary electric service can be obtained.

C. The Contractor shall secure and pay for all required permits and back charges for Work performed by others, and other expenses incidental to the installation of the temporary electric service.

1.18 POSTED OPERATING INSTRUCTIONS:

A. Provide for each system and principal item of equipment as specified in the technical sections for use by operation and maintenance personnel. The operating instructions shall include the following:

1. Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

2. Start up, proper adjustment, operating, lubrication, and shutdown procedures.

3. Safety precautions.

4. The procedure in the event of equipment failure.
5. Other items of instruction as recommended by the manufacturer of each system or item of equipment.

B. Print or engrave operating instructions and frame under glass or in approved laminated plastic. Post instructions where directed. For operating instructions exposed to the weather, provide weather-resistant materials or weatherproof enclosures. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

1.19 MANUFACTURER'S NAMEPLATE

A. Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.20 FIELD FABRICATED NAMEPLATES

A. Provide laminated plastic nameplates for each equipment enclosure, relay, switch, and device; as specified in the technical sections or as indicated on the Drawings. Each nameplate inscription shall identify the name of the equipment, function and, when applicable, the position. Nameplates shall be melamine plastic, 0.125 inch thick, black with white letters. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be one by 2.5 inches. Lettering shall be a minimum of 0.25 inch high normal block style. All electrical equipment shall be labeled with the following:

1. Panel Name
2. Fed from “Panel Name” & “CKT #”
3. Amps
4. Volts
5. Phase

1.21 ARC FLASH LABEL

A. Provide arc flash labels for all electrical equipment with operating voltages greater than 50 volt per NEC 110.16.

1.22 WARNING SIGNS

A. Exterior warning and caution signs shall be weather resistant, nonfading, preprinted cellulose acetate butyrate signs with 20-gauge, galvanized steel backing, with colors, legend, and size appropriate to the location.
B. Interior warning and caution signs shall be aluminum signs with preprinted baked enamel finish and punched for fasteners. Colors, legend, and size appropriate to location.

1.23 WIRE AND CABLE MARKERS

A. Underground line marking tape shall be permanent, bright colored, continuous printed, metal backed, plastic tape compounded for direct burial service not less than 6 inches wide. Printed legend indicative of general type of underground line below.

B. Wire labels for wires smaller than No. 4. shall be vinyl or vinyl cloth, self-adhesive, wraparound, wire markers with preprinted numbers and letters. Wire sizes No. 4 and larger and multi conductor cables shall be marked with one-piece, nylon locking marker ties equal to Panduit PLM Series.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials and equipment shall be listed by UL unless it can be demonstrated that no UL standards exist for a specific item or class of equipment.

B. All other materials, not specifically described but required for a complete and operable electrical installation, shall be new, first quality of their respective kinds, Specification grade or better, and as selected by the Contractor subject to the acceptance by the Engineer.

C. All materials and equipment furnished and installed on this Project shall meet the most stringent efficiency standards of the local utility to qualify for the maximum rebate.

2.02 MATERIAL AND CONSTRUCTION REQUIREMENTS

A. Unless otherwise shown or specified, all enclosures, motors, wiring and other materials and all construction methods shall conform to the following:

1. Refer to Division 26 Specification 26 05 33 ‘Raceways and Boxes for Electrical Systems’ Table 2.03A for enclosure ratings for specific areas.

2. Indoor, Above Ground, Dry Areas - NEMA 12, General Purpose, with gasketing for applications where atmospheric conditions are normal. Enclosures shall be sheet steel, treated to resist corrosion, prime painted and finished with a gray baked-on enamel. Control stations shall have NEMA 13, oil tight and dust-tight enclosures.

3. Outdoors, Moist Areas and Indoor Below Grade Areas - NEMA 4, watertight. Enclosures shall be cast aluminum or stainless steel. Where
indicated on electrical Plans provide NEMA 4X enclosures of stainless steel or reinforced non-metallic (Krydon) construction. All installations shall utilize only stainless steel fasteners/hardware.

4. Indoor-Outdoor, Subject to Submersion in Liquid - NEMA 6, submersible, liquid tight construction. Enclosures shall be cast aluminum.

5. Hazardous Areas - NEMA 7 & 9, explosion-proof construction for Class 1, Division 1, Group D areas. Enclosures shall be cast aluminum.

6. Corrosive Atmospheres - All Work located in corrosive atmospheres, such as atmospheres in the filter area and the chemical feed pump areas shall be of such construction that the corrosive agent cannot enter into and damage the electrical work. All materials in these areas shall be non-corrodible or finished with an inert coating. Stainless steel, or reinforced PVC electrical enclosures and PVC coated rigid conduit and fittings are required. In addition, provide gas tight seals in all conduits passing from or into corrosive areas (similar to Crouse Hinds Type EYS), to minimize migration of corrosive fumes to other building areas.

2.03 INTERCHANGEABILITY

A. In all design and purchasing, interchangeability of items of equipment, subassemblies, parts, motors, starters, relays and other items is essential. All similar items shall be of the same manufacturer, type, model and dimensions.

B. For ease of maintenance and parts replacement, to the maximum extent possible, use equipment of a single manufacturer.

C. The Engineer reserves the right to reject any submittal which contains equipment from various manufacturers if suitable materials can be secured from fewer manufacturers and to require that source of materials be unified to the maximum extent possible.

2.04 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 COORDINATION

A. Prior to all Work of this section, carefully inspect the installed Work of all other trades and verify that all such Work is complete to the point where this installation may properly commence.
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B. Field verify all locations and dimensions to ensure that the equipment will be properly located, readily accessible, and installed in accordance with all pertinent codes and Regulations, the Contract Documents, and the referenced standards.

C. The Work shall be carefully laid out in advance, and where cutting, drilling, etc., of floors, walls, ceilings, or other surfaces is necessary for the proper installation, this Work shall be carefully done, and any damage to building, piping, or equipment shall be repaired by skilled mechanics of the trades involved at no additional cost to the Owner.

D. In the event any discrepancies are discovered, immediately notify the Owner’s Representative in writing. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION

A. Install all equipment and fixtures in complete accordance with the manufacturer’s recommendations and all pertinent codes and Regulations.

B. Thoroughly inspect all items of equipment and any items dented, scratched, or otherwise damaged in any manner shall be replaced or repaired and painted to match original finish. All items so repaired and refinished shall be brought to the attention of the Engineer for inspection and acceptance.

C. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete or supported from or on other structural components, as they are constructed.

D. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building and equipment which must be placed in service before further construction can take place.

E. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

F. The final routing of raceways shall be determined by structural conditions, interferences with other trades and by terminal locations on apparatus. The Engineer reserves the right of a reasonable amount of shifting at no extra cost up until time of roughing in the Work.

G. Where circuits are shown as “home-runs” all necessary fittings and boxes shall be provided for a complete raceway installation.

H. In general, wiring and raceway systems for security alarm, fire alarm, telephone and intercommunications systems are not indicated on the Drawings but shall be furnished and installed under this section.
I. Each lighting and each receptacle circuit shall have its own neutral, dedicated to that circuit. A common neutral for more than one signal phase circuit is not allowed.

J. Surface mounted panel boxed, junction boxes, conduits, etc., shall be supported by spacers to provide a clearance between wall and equipment.

K. Upon completion of all installation, lamping, and testing, thoroughly inspect all exposed portions of the electrical installation and completely remove all exposed labels, soils, markings and foreign material.

3.03 MARKING AND LABELING

A. All panelboards, indoor transformers, cabinets, control panels and other specified equipment shall be labeled with engraved laminated plastic plates with engraved letters. Punch tapes with mastic backings are not acceptable.

B. All starters, disconnect switches and other specified equipment shall be marked with engraved laminated plastic plates and engraved letters. Where individual switches are circuit breakers in power or distribution panel boards do not have cardholders, they shall be marked with ½” high labels.

C. All empty conduits shall have labels tied to the pull string at each end of each empty conduit, marked as to identification of each end. Junction boxes with circuits provided for future use shall be labeled with appropriate circuit designation.

D. All panelboards directories shall be filled out with typewritten identification of each circuit.

3.04 WIRE AND CABLE MARKERS

A. Tag control circuit conductors at both ends and at junction box splices using wire and cable markers with identification numbers as designated on equipment wiring diagrams. Provide typed listing to identify conductors by number and use.

B. Identify spare conductors, individually, at both ends and at junction box splices with number between 1 and 999. Do not duplicate numbers.

C. Identify wire numbers on terminal block marking strips.

D. Provide permanent plastic name tag indicating load for each feeder for all junction boxes, handholes and manholes. Label all process motor wires to yard equipment in handholes and manholes.

3.05 TEST & SETTINGS

A. Provide the services of an independent Testing Agency to perform the specified tests outlined in their respective specification sections.
B. Provide necessary material, equipment, labor and technical supervision to perform and complete the Electrical Acceptance Tests as required.

C. Acceptance tests as herein specified are defined as those tests and inspections required to determine that the equipment involved is acceptable as delivered to the job Site, that the equipment may be energized for final operational tests and is in accordance with the Specifications.

D. Final acceptance of the equipment and/or workmanship will depend upon performance characteristics as determined by the subject tests, in addition to complete operation tests, on all electrical equipment to show that it will perform the functions for which it was designed.

E. If the test and inspection data submitted should indicate deficiencies in the operation of the electrical apparatus or in the manufacturer thereof, the Contractor shall promptly implement the necessary adjustments, corrections, modifications and/or replacements necessary to be made to meet the specified requirements.

F. Upon completion of the remedial Work, the Testing Agency shall repeat all of the tests on components previously found deficient on the first test or any additional test if they be required. It shall be the responsibility and obligation of the Contractor to have all remedial Work accomplished as may be required by second and/or additional tests.

3.06 CLEANING

A. When all Work is complete and has been tested and accepted by the Owner’s Representative, the Contractor shall clean all light fixtures, equipment, and exposed surfaces that have been directly affected by this Work. The Contractor, insofar as the Work is concerned, shall at all times keep the premises in a neat and orderly condition and at the completion of the Work shall properly clean up and remove from the Site any excess materials.

3.07 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.08 STARTUP & COMMISSIONING

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide the labor, tools, equipment, and materials necessary to install wires, cables, and connectors in accordance with the Plans and in accordance with this section and applicable reference standards listed in Article 1.03.

2. This section includes wires, cables, and connectors for power, lighting, signal, control, and related systems rated 600 volts and less.

B. Related Requirements

1. Division 26: Section 26 05 00 ‘Common Work Results For Electrical’

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. National Fire Protection Association (NFPA) 70

2. National Electrical Code (NEC)

3. Underwriter's Laboratories, Inc. (UL) Compliance

   a. UL Standard 83 Thermoplastic Insulated Wires and Cables
   b. UL Standard 486A Wire Connectors and Soldering Lugs for Use with Copper Conductors
   c. UL Standard 854 Service Entrance Cable

4. National Electrical Manufacturers Association (NEMA) Compliance

   a. WC 5 Thermoplastic Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
   b. WC 7 Cross-Linked Thermosetting Polyethylene Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
c. WC 8 Ethylene Propylene Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

5. Institute of Electrical and Electronic Engineers (IEEE) Compliance
   a. Standard 82 Test Procedure for Impulse Voltage Tests on Insulated Conductors

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product data
   1. Product data for electrical wires, cables, and connectors
   2. Product data for Megger insulation testing instrument
   3. Report sheets for Megger testing

C. Manufacturer Reports
   1. Furnish manufacturer's product data, test reports, and materials certifications as required

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Deliver wire and cable properly packaged in factory fabricated type containers, or wound on NEMA specified type wire and cable reels.

C. Store wire and cable in clean dry space in original containers. Protect products from weather, damaging fumes, construction debris, and traffic.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.
PART 2 – PRODUCTS

2.01 MATERIALS

A. General

1. Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Installer to comply with Project's installation requirements, NEC and NEMA standards.

2. Provide color-coding for phase identification as specified herein.

3. Provide factory applied nylon or polyvinyl chloride (PVC) external jackets on wires and cables for pulls in raceways over 100 feet in length, for pulls in raceways with more than three equivalent 90 degree bends, for pulls in conduits underground or under slabs on grade, and where indicated.

B. Service & Distribution Wiring

1. 98 percent conductivity copper

2. 600-volt insulation, type XHHW

3. U.L. listed for underground use in wet locations at 75 degrees C

4. Use XHHW for #4 and larger and THHN/THWN or XHHW for #6 and smaller

C. Building Wiring

1. 98 percent conductivity copper

2. 600-volt insulation, type, THWN/THHN, or XHHW

3. Stranded conductor: 14 AWG and larger

4. Minimum branch circuit: 12 AWG

5. Minimum 10 AWG for 120-volt circuits more than 100 feet long

6. Minimum 10 AWG for 277-volt circuits more than 230 feet long

D. Control Wiring

1. Control wiring for digital/discrete signal wiring, shall be 600V, minimum 14 AWG, THHN/THWN, copper stranded, unless specifically indicated otherwise.
2. Instrument cable for analog signal wiring (4-20mA DC) shall be shielded, 2-conductor, 300 volt rated, minimum 18 AWG, Belden No. 8760, Alpha Wire, or approved equal. Provide 600 volt rated cable where cable occupies the same enclosure and/or raceway with voltages greater than 300 volt as specified below.

3. Single Shielded Pair Instrument Cable
   a. Tinned copper, XLPE insulated stranded conductors, 18 AWG minimum, twisted pair with overall shield, stranded tinned 18 AWG copper drain wire and overall PVC jacket. Rated for 600 volts minimum and conforming to UL 1581. Cables shall be rated for tray cable (TC) use where installed within a cable tray.

1. Multi-paired Shielded Instrument Cable
   a. Tinned copper, XLPE insulated stranded conductors, No. 16 AWG minimum, twisted pairs with shield over each pair, stranded tinned No. 18 AWG copper drain wire, and overall PVC outer jacket. Rated for 600 volts minimum and conforming to UL 1581 or UL 13. Cables shall be rated for tray cable “TC” use where installed within a cable tray.

E. Splices

1. No. 10 and smaller with 600-volt pressure type insulated connector of wire-nut type, or equal; soldered and crimped type not allowed. Ideal type wire nut Buchanan type B-Cap and Minnesota Mining (3M) type Scotchlok.

2. No. 8 and larger with solderless lugs or solderless connectors of lock-tite or similar type properly taped with plastic insulating tape, Minnesota Mining Co. #33, or equal, then two half-lap servings of friction tape, Manson, or equal.

3. Wire connector systems for use with underground conductors shall be UL listed specifically for such use.

4. Service entrance conductors shall be installed without splices. Electrical equipment feeders shall be spliced only where shown or specifically approved. Control and metering conductors shall be installed without splices.

5. All splices shall be made only by specific permission of the Engineer and then only in manholes or pull boxes and shall be sealed watertight with a heat-shrunk insulation.

6. Tighten electrical connectors and terminals in accordance with manufacturer’s published torque tightening values. Where manufacture’s
torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and 486B.

7. Use UL listed splice for all underground wires, ducts buried, in conduit and in ducts. Connectors and splices shall be waterproof.

2.02 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 WIRE AND CABLE INSTALLATION

A. All wire and cables shall be installed in conduit of size and type indicated on the Drawings and Specifications.

B. Install electrical cables, wires, and connectors in compliance with NEC.

C. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary.

D. Use pulling means including, fish tape, cable, rope, and basket weave wire/cable grips, which will not damage cables or raceways. Do not use rope hitches for pulling attachment to wire or cable.

E. Conceal all cable in finished spaces.

F. Install exposed cable parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible.

G. Conductors shall be sized such that voltage drop does not exceed 3 percent for branch circuits or 5 percent for feeder/branch circuit combination.

H. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

I. All feeder and branch circuit wiring shall be color coded at all termination and splice locations. System neutrals shall be designated in addition to phase conductors. Equipment grounds shall be green.

J. The number of conductors shown on the Drawings is not necessarily the correct number required. As many conductors as are required in each case shall be installed. In general, grounding conductors are not scheduled.
K. In general, wiring for the following systems shall be installed in separate conduits. Do not mix categories in a single raceway.

1. 120 volt power wiring
2. 120 volt control wiring, including, digital input and output signals
3. 24 volt DC control wiring, including, digital input and output signals
4. 24 volt DC analog control wiring (4-20mA)
5. Communications wiring
6. Special & Emergency Systems

L. Conductors 600 volts and below shall be color coded in accordance with the following:

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>120 / 208 COLOR</th>
<th>480 / 277 COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A</td>
<td>Black</td>
<td>Brown</td>
</tr>
<tr>
<td>Phase B</td>
<td>Red</td>
<td>Orange</td>
</tr>
<tr>
<td>Phase C</td>
<td>Blue</td>
<td>Yellow</td>
</tr>
<tr>
<td>Neutral</td>
<td>White</td>
<td>White / Gray</td>
</tr>
<tr>
<td>Equipment Grounds</td>
<td>Green</td>
<td>Green</td>
</tr>
</tbody>
</table>

3.02 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

B. The Contractor shall test each electrical circuit after permanent cables are in place with terminators installed, but before cable or wire is connected to equipment or devices to demonstrate that each circuit is free from improper grounds and short circuits.

C. The Contractor shall Megger Test the insulation resistance between phases and from each phase to ground for each of the following feeder and motor branch circuits:

1. Lighting Circuit Feeder

D. The Megger Testing shall be witnessed by the Engineer. The Engineer shall be notified at least 48 hours in advance of testing.

E. Measure the insulation resistance with a digital Megger insulation testing instrument in accordance with manufacturer’s recommendations. All test instruments are to be provided by the Contractor.
F. If any insulation resistance measures less than 50 megohms, the cable shall be considered faulty with the cable failing the insulation test. In moist environments, bag the ends of the cable to prevent a faulty Megger test.

G. Any cable which fails the insulation tests or which fails when tested under full load conditions shall be replaced with new cable for the full length and retested at no additional cost to Owner.

H. The below grade service or feeder splice shall be water immersion Megger tested in the presence of the Engineer. Each splice shall be immersed in a grounded water immersion bath for 24 continuous hours prior to and during the test. Criteria for failure shall be as described for cable above.

3.03 STARTUP & COMMISSIONING

A. Provide in accordance with Division 01 General Requirements.

3.04 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide all labor, tools, equipment, materials and appurtenances necessary to furnish and install grounding materials in accordance with the Drawings and as specified herein. This section includes solid grounding of electrical systems and equipment.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Unless otherwise noted, the most recent version of the listed publications, including revisions, at time of bid opening shall apply.

B. National Electrical Code (NEC), as applicable to electrical grounding and bonding, Art. 250.

C. Underwriters’ Laboratories, INC. (UL)

1. UL 467  Electrical Grounding and Bonding Equipment

D. Institute Of Electrical And Electronic Engineers (IEEE) IEEE 81 AND 142


2. 141-1993  IEEE Recommended Practice for Electric Power Distribution for Industrial Plants

3. 142-2007  IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.
1.05 SUBMITTALS
A. Submit in accordance with Division 01 General Requirements.
B. All submittals shall have pertinent numerical data and information specified in the "English" language using "English" units. The submittals shall include but are not limited to the following in addition to Division 01 General Requirements.
C. Product Data
   1. Provide product data for all grounding equipment and appurtenances, including but not limited to; wires, connectors, lugs, clamps, ground rods, bonding jumpers and accessories.

1.06 QUALITY ASSURANCE
A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING
A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS
A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS
2.01 GENERAL
A. Provide each electrical grounding system with assembly of materials required for complete installation including wires/cables, connectors, lugs, clamps, ground rods, bonding jumpers and accessories.
B. Provide electrical grounding conductors for grounding connections matched to power supply wiring materials and sized according to NEC.
C. Provide electrical connectors, lugs, clamps, bonding jumpers and accessories as recommended by the respective manufacturer for the particular application, unless other indicated.
D. Ground Rods: Solid copper clad, 3/4-inch diameter by 10 feet long.
E. Insulated Conductors: Green in color.
F. Bonding Strap Conductor/Connectors: Soft copper, 0.05 inch thick and 2-inches wide, except as indicated.
G. Pressure Connectors: High conductivity plated units.
H. Bolted Clamps: Heavy-duty units listed for the application.

I. Exothermic Welded Connections: Provided in kit form and selected for the specific types, sizes, and combinations of conductors and other items to be connected.

2.02 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 GROUNDING & BONDING

A. Provide grounding electrode conductor from each site lighting pole to a ground rod at locations indicated on the Contract Drawings. Use exothermic style ground connections to the ground rods.

B. Use of conduit system for ground conductor shall not be allowed.

C. Provide and install 600 volt insulated bonding conductors throughout the distribution system with connection to bonding (or grounding) terminal on each panel and panel board with connections to other equipment where specifically indicated and noted.

D. Bonding conductors shall be continuous where possible. Where splices are required, provide compression connectors of approved pattern. Insulate connectors to equivalent thickness of conductors.

E. Provide equipment grounding conductors in all conduits containing power, control, or instrumentation conductors on the load side of the service equipment or on the load side of a separately derived system.

F. Comply with NEC Article 250 for sizes and quantities of equipment grounding conductors, except that larger sizes indicated or shown on the Contract Documents shall take precedence. Use of metallic conduit systems for equipment grounding as recognized by the NEC shall not be permitted under this specification.

G. Install bonding jumper for flexible metal conduit unless fittings are approved for grounding or otherwise comply with NEC.

1. Size jumper to match over-current device.

2. Green insulation.

3. Connect to grounding bushing at each end.
H. Ensure that entire electrical system is electrically continuous and permanently and effectively grounded, including all electrical equipment.

1. Locate ground rods with a minimum of two rod length from each other and at least the same distance from any other grounding electrode. Connect ground conductors to ground rods by means of exothermic welds except at test wells and as otherwise indicated. Drive rods until tops are 24 inches below finished floor or final grade except as otherwise indicated.

I. Route grounding electrode conductors along the shortest and straightest paths possible without obstructing access or placing conductors where they may be subjected to strain, impact, or damage, except as indicated.

J. Ensure that grounding electrode conductor connections to interior piping, structural members, and the like are accessible for periodic inspection during the life of the structure.

3.02 BONDING FOR OTHER TRADES

A. Signal raceways, water piping, heating piping and metallic air ducts shall be bonded together and to the grounding conductor with No. 8 soft drawn bare solid conductors. Connections to pipes shall be made with cast clamps of like material as the pipes to which attached, to ducting terminated in a secure manner by best practical means, bonding across any flexible or insulated connections.

B. All bonding conductors shall be installed in a neat manner properly shaped for contour of surface involved and properly supported. At locations remote from the main service entrance panel boards, bond to the largest raceway nearby.

3.03 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.04 STARTUP & COMMISSIONING

A. Provide in accordance with Division 01 General Requirements.

3.05 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide the labor, tools, equipment, and materials necessary to furnish and install raceways, boxes, and supporting devices in accordance with the Plans and applicable reference standards listed in Article 1.03.

B. Types of products specified in this section include

1. Conduit, Raceways & Fittings
2. Supporting Devices
3. Boxes and Fittings

C. Related Requirements

1. Division 26: Section 26 05 00 Common Work Results For Electrical
2. Division 26: Section 26 05 43 Underground Ducts And Raceways For Electrical Systems

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. Underwriters Laboratories, Inc. (UL) Listing and Labeling. Items provided under this section shall be listed and labeled by UL
2. National Electrical Code (NEC)
3. National Electrical Manufacturers Association (NEMA)

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.
1.05 SUBMITTALS
   A. Submit in accordance with Division 01 General Requirements.
   B. Furnish manufacturer's product data, test reports, and material certifications as required.
   C. Product data for cabinets and enclosures.
   D. Shop Drawings for floor boxes and boxes, enclosures and cabinets that are to be shop fabricated (non-stock items)

1.06 QUALITY ASSURANCE
   A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING
   A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS
   A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 CONDUIT, RACEWAYS & FITTINGS
   A. Provide conduit with 3/4-inch diameter minimum, except where specifically shown smaller on the Drawings.
   B. Conduit, connectors, and fittings shall be approved for the installation of electrical conductors.
   C. Refer to Table 3.01A for approved conduit installation guidelines.
      1. Electrical Metallic Tubing (EMT)
         a. EMT shall be rigid metallic conduit of the thin wall type in straight lengths, elbows, or bends and must conform to NEMA C80.3 and the requirements of UL 797.
         b. Couplings and connectors shall be steel compression fittings. Where EMT enters outlet boxes, cabinets, or other enclosures, connectors must be the insulated-throat type, with a locknut. Fittings must meet the requirements of NEMA FB 1.
      2. Rigid Galvanized Steel Conduit
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Issue Date: January 2020
Portland, Maine

a. Rigid steel conduit (RGS), including couplings, elbows, bends, and nipples, shall conform to the requirements of UL 6 and NEMA C80.1. Steel fittings shall be galvanized by the hot-dip process.

b. Fittings for rigid steel conduit shall be threaded and shall conform to NEMA FB 1.

c. Gaskets shall be solid for fittings sized 1-1/2 inches and less. Conduit fittings with blank covers shall have gaskets except in clean, dry areas or at the lowest point of a conduit run where drainage is required.

d. Covers shall have captive screws and be accessible after the Work has been completed.

3. Rigid Aluminum Conduit

a. RAC, including couplings, elbows, bends, and nipples, shall conform to the requirements of UL 6 and ANSI C80.5.

b. Fittings for rigid aluminum conduit shall be threaded and shall conform to NEMA FB 1. Fittings shall be galvanized by the hot dip process, unless manufacturer dictates aluminum for specific application.

c. Gaskets shall be solid for fittings sized 1-1/2 inches and less. Conduit fittings with blank covers shall have gaskets except in clean, dry areas or at the lowest point of a conduit run where drainage is required.

d. Covers shall have captive screws and be accessible after the work has been completed.

4. PVC Coated Rigid Metal Conduit

a. Rigid galvanized metal conduit coated with 40 mils thick polyvinylchloride coating.

b. Fittings, elbows, supporting devices and accessories shall include factory applied 20 mils thick polyvinylchloride coating and be manufactured by the same as that of the conduit.

c. Use tools as recommended by the manufacturer so as not to damage PVC coating. Where coating is damaged, touch-up with PVC paint in the field after installation.

5. Rigid Plastic Conduit

a. PVC Schedule 40: Conduit shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to
join conduits as manufactured the same as the conduit manufacturer.

b. PVC Schedule 80: Heavy wall PVC conduit that shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to join conduits as manufactured the same as the conduit manufacturer.

6. Flexible Metallic Conduit

a. Flexible metallic (FM) conduit shall meet the requirements of UL1.

b. Liquid tight flexible metallic conduit shall be provided with a protective jacket of PVC extruded over a flexible interlocked galvanized steel core to protect wiring against moisture, oil, chemicals, and corrosive fumes.

c. Fittings for flexible metallic conduit shall meet the requirements of UL 514B, Type I box connector, electrical, Type III coupling, electrical conduit, flexible steel, or Type IV adapter, electrical conduit.

7. Wireways

a. Wireways and auxiliary gutters for use in exposed, dry locations shall be a prefabricated channel-shaped sheet metal trough with hinged or removable covers, associated fittings, and supports for housing, and protecting electrical wires and cables in accordance with UL 870.

b. Straight sections of trough, elbows, tees, crosses, closing plates, connectors, and hanging brackets shall be constructed from sheet steel of commercial quality not less than 16-gage. Sheet metal component parts shall be cleaned, phosphatized, and coated with a corrosion-resistant gray paint.

c. Straight sections of wireways and auxiliary gutters shall be solid or have knockouts as indicated in both sides and bottom, 3 inches on center.

d. Straight sections shall be not more than 5-feet long, with covers held closed with screws.

8. Conduit Seals

a. Provide factory fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Provide a cast in place water stop wall sleeve with a mechanical pipe seal between the conduit.
and the sleeve. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

b. Provide E.Y.S. seal fittings with appropriate potting material where conduits enter or leave a Class 1, Division 1 or 2 environments or a Class 2, Division 1 or 2 environment, and chemical rooms.

2.02 SUPPORTING DEVICES

A. Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot dip galvanized unless material is inherently corrosion resistant.

B. Refer to Table 2.02A for approved supporting device installation guidelines.

1. Conduit Supports

a. Single run hangers: Galvanized steel conduit straps or clamps, or cast metal beam clamps. Perforated straps and spring steel clips and clamps will not be permitted.

b. Group run hangers: Minimum 12-gauge galvanized performed U-channel rack with conduit fittings; 25 percent spare capacity

c. Hanger rods: Threaded steel, 3/8-inch diameter, or as identified on the Drawings

d. Vertical run supports: Minimum 12-gauge galvanized performed U-channel struts with conduit fittings

2. Equipment and Lighting Supports

a. 12-gauge galvanized performed U-channel struts with fixture and conduit fittings, as applicable, unless indicated otherwise on the Drawings.

3. Corrosive Area Supports

a. Clamp Hangers, Pipe Straps, and Clamp Back Spacers for use with PVC-coated rigid metal conduit shall have 40 mil gray PVC exterior coating.

b. Clamp Hangers, Pipe Straps, etc. for use with PVC nonmetallic conduit shall be of nonmetallic PVC material.

c. Hanger Rods: 20 mil gray PVC exterior coated rod with threaded ends only 3/8 inch and 1/2 inch sizes as required.

d. Strut Support: 20 mil gray PVC exterior coating strut. Standard channel, slotted channel, and back to back channel are acceptable.
e. Provide stainless steel supports and accessories in lieu of PVC coated supports when indicated in Table 2.02A below.

**TABLE 2.02A – Supporting Devices**

<table>
<thead>
<tr>
<th>Location/Equipment</th>
<th>Acceptable Support Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility &amp; Mechanical Rooms</td>
<td>Galvanized Steel U-Channel</td>
</tr>
<tr>
<td>Exterior</td>
<td>Galvanized Steel U-Channel</td>
</tr>
</tbody>
</table>

### 2.03 BOXES AND FITTINGS

A. Boxes must have sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of NFPA 70 and UL 514A.

B. In general, boxes that are exposed to weather, process areas, normally wet locations, and locations exposed in mechanical spaces shall be cast-metal. Boxes in all other finished areas shall be sheet metal. Boxes installed in corrosive areas, such as the chemical feed room, shall be nonmetallic.

C. Refer to Table 2.03A for approved enclosure types.

1. **Sheet Metal Outlet Boxes**
   a. Sheet Metal Outlet Boxes: Standard type galvanized steel, minimum four inch square or octagon by 1-1/2 inch deep.
   b. Luminaire and Equipment Supporting boxes: Rated for weight of equipment supported; include 2 inch male fixture studs where required.
   c. Single Wall Type: Minimum size, four inch square by 1-1/2 inch or 2-1/8 inch deep, except as noted. Provide dry wall device covers raised 3/4 inch minimum to insure flush finish mounting.
   d. Ganged Wall Type: Minimum depth three inches except as noted, ganged as required under common plate to contain devices shown. On 277-volt circuits, ganged boxes for switches shall contain only one circuit or equip box with permanent barriers per NEC Art 404-8.

2. **Cast Outlet Boxes**
   a. Type FS shallow and type FD deep, cast ferroalloy
   b. Provide number of threaded hubs as required.
   c. Use in all exterior, damp and locations exposed in mechanical spaces.
d. Provide gasketed cover and accessories by box manufacturer for complete weatherproofing. Provide correct box to accept weatherproof covers as specified.

3. Sheet Metal Pull & Junction Boxes

a. Sheet metal boxes shall be standard type galvanized steel and must conform to UL 50.

b. Box dimensions shall be minimum four inch square or octagon by 2/1/2 inch deep.

c. Sizes up to 12 by 12 by 6 inches: Provide screw-type or hinged covers.

d. Sizes greater than 12 by 12 by 6 inches: Provide hinged covers.

e. Boxes shall be sized to accommodate all incoming raceways.

4. Nonmetallic Outlet, Device, and Wiring Boxes

a. Conform to NEMA OS 2, Nonmetallic Outlet Boxes, Device Boxes, Covers, and box Supports, and UL 514C, Nonmetallic Outlet Boxes, Flush Device Boxes and Covers. Boxes shall be molded polyvinyl chloride (PVC), or fiberglass units of type, shape, size, and depth to suit location and application.

b. Boxes shall be equipped with threaded screw holes for device and cover plate mounting. Each box shall have a molded cover of matching material suitable for the application and location installed.
TABLE 2.03A – Electrical Enclosure Types

<table>
<thead>
<tr>
<th>Location/Equipment</th>
<th>Acceptable Enclosure Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility &amp; Mechanical Rooms</td>
<td>NEMA 12</td>
</tr>
<tr>
<td>Exterior</td>
<td>NEMA 4</td>
</tr>
</tbody>
</table>

2.04 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 CONDUIT

A. Uses Permitted

1. Use liquid tight flexible metal conduit for the final 24 inches of connections to motors or control items subject to movement or vibration.

2. Use RGS for all exterior aboveground installations unless otherwise noted.

3. Use PVC coated rigid steel conduit, or as scheduled below, for installation in corrosive areas, and other areas as identified on the Drawings.

4. Exposed raceways in Manufacturing Areas, Utility Rooms, Mechanical Rooms, Warehouse Areas, etc., shall be Rigid Galvanized Steel below 15 feet.

5. Conduit and raceway runs in finished areas concealed in or behind walls, above ceilings, or exposed on walls and ceilings 15 feet or more above finished floors and not subject to mechanical damage may be electrical metallic tubing (EMT).

6. Use Schedule 40 PVC conduit for exterior direct buried installations. Use Schedule 40 PVC conduit for exterior concrete encased installations. Use Schedule 80 PVC conduit for underground installations under driveways. The transition from underground and from concrete encasement to riser shall be rigid steel conduit to a minimum of 12 inches above finished floor and/or finished grade elevation. All elbows shall be prefabricated Rigid Steel to prevent wire burn through. Reference specification 26 05 43 ‘Underground Ducts and Raceways for Electrical Systems’ for further requirements.

7. Install conduit seals for conduit penetrations of slabs on grade and exterior walls below grade and where indicated. Tighten sleeve seal screws until sealing grommets have expanded to form watertight seal. Provide seals for the interior of conduits that penetrate exterior or water bearing walls,
consisting of gland type sealing bushings or RTV closed cell silicone foam.

8. Refer to Table 3.01A below for approved conduit types.

**TABLE 3.01A – Conduit Types**

<table>
<thead>
<tr>
<th>Location/Equipment</th>
<th>Approved Conduit Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical &amp; Control Rooms</td>
<td>Electrical Metallic Tubing</td>
</tr>
<tr>
<td>Utility &amp; Mechanical Rooms</td>
<td>Electrical Metallic Tubing</td>
</tr>
<tr>
<td>Exterior Above Grade</td>
<td>Rigid Galvanized Steel</td>
</tr>
<tr>
<td>Exterior Below Grade</td>
<td>PVC Sched 80</td>
</tr>
</tbody>
</table>

B. Power, lighting, control, emergency light and power, and special-service systems and all related components shall be installed in accordance with NFPA 70, and shall be enclosed in separate conduit or separate conduit systems as indicated on the Drawings and as specified herein.

C. Any run of conduit between outlet and outlet, between fitting and fitting, or between outlet and fitting shall contain no more than the equivalent of three 90-degree bends, including those bends located immediately at the outlet or fitting. Field bends shall be made in accordance with the manufacturer's recommendations, which normally require use of a one-size-larger bender than would be required for uncoated conduit. Installed conduit and fittings shall be free of dirt and trash and shall not be deformed or crushed. Empty conduit shall have a pull rope stalled.

D. Conduit shall be installed with a minimum of 3 inches of free air space separation from mechanical piping.

E. Conduit in finished areas shall be installed concealed. Conduit passing through masonry or concrete walls shall be installed in sleeves. Conduit shall be securely clamped and supported at least every 10 feet vertically and 8 feet horizontally. Galvanized pipe straps shall be fastened to structure with bolts, screws, and anchors. Wooden masonry plugs shall not be used.

F. Install exposed conduits, parallel or perpendicular to walls, ceilings, or structural members. Do not run through structural members. Avoid horizontal runs within partitions or sidewalls. Avoid ceiling inserts, lights, or ventilation ducts or outlets. Do not run conduits across pipe shafts or ventilation duct openings and keep conduits a minimum of 6 inches from parallel runs of flues, hot water pipes, or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.

G. Do not run conduits exposed on the exterior surface of buildings. Conduits penetrating exterior walls below grade, at grade floors, or below grade floors shall
be sealed to prevent moisture migration. The exterior of the conduit shall be sealed with a mechanical pipe seal. The interior conduit seal shall be a gland type sealing bushing or RTV closed cell silicone foam. Ensure that conduits do not retain water against these seals.

H. Raceways penetrating fire rated walls, floors, and partitions shall be sealed with a fire rated sealant.

I. All conduits shall be supported with materials specifically made for this purpose. Do not use wire hangers. Do not attach any parts of the raceway system to ventilation ducts. Conduit supports shall be attached to the building. Support conduits on each side of bends and on a spacing not to exceed the following: 6 feet for conduits smaller than 1 1/4 inches and 8 feet for conduits 1 1/4 inches and larger. Support riser conduits at each floor level with clamp hangers. All underground conduits shall be securely anchored to prevent movement during placement of concrete or backfill. Use precast separators and heavy gauge wire ties or other approved fasteners.

J. Provide E.Y.S. seal fittings with appropriate potting material where conduits enter or leave a Class 1, Division 1 or 2 environments or a Class 2, Division 1 or 2 environment, and chemical rooms.

K. Conduit connections to boxes and fittings shall be supported not more than 36 inches from the connection point. Conduit bends shall be supported not more than 36 inches from each change in direction. Conduit shall be installed in neat symmetrical lines parallel to the centerlines of the building construction and the building outline. Multiple runs shall be parallel and grouped whenever possible on common supports. Exposed ends of conduit without conductors shall be sealed with watertight caps or plugs.

L. Bonding wires shall be used in flexible conduit for all circuits. Flexible conduit shall not be considered a ground conductor.

M. Liquid tight flexible metallic conduits shall be used in wet and oily locations and to complete the connection to motor-driven equipment.

N. Electrical connections to vibration-isolated equipment shall be made with flexible metallic conduit in a manner that will not impair the function of the equipment.

O. A polypropylene pull rope with a tensile strength not less than 130 pounds shall be installed in empty conduit.

P. Electrical conduit may be embedded in concrete according to the provisions of Article 6.3 of ACI 318 Building Code Requirements for Reinforced Concrete, provided the following conditions are met:
1. Outside diameter of conduit shall not exceed 1/3 of concrete thickness. Maximum conduit outside diameter shall not exceed 3 inches when embedded in slab.

2. Conduit shall not be placed closer than three diameters on center. Route conduit to minimize crossing of different conduit runs.

3. Conduit shall not be embedded in structural concrete slabs less than four inches thick.

4. A 1-1/2 inch minimum concrete cover shall be provided for conduits in structural concrete slabs.

Q. Installation of Underground Conduit

1. Minimum of 3/4 inch conduit in or under concrete slab on grade.

2. Where conduits are installed in concrete slabs, on the ground, underground, or exposed to the weather, make all joints liquid tight and gas tight.

3. Bury all underground conduit, except under concrete slabs placed on fill, to a depth of at least 30 inches below finished grade unless otherwise indicated on the Drawings.

4. Slope ducts to drain away from buildings into manholes and/or handholes. Adjust final slopes to coordinate with existing Site utilities.

5. Install on undisturbed soil where possible. Concrete encase conduits as shown on Drawings. Use pit run gravel and sand, placed 8-inch lifts and compacted for backfill.

1. Reference Specification 26 05 43 ‘Underground Ducts And Raceways For Electrical Systems’ for further requirements.

R. Installation of Rigid Metal Conduit

1. Ends of conduit shall be cut square, reamed and threaded, and joints shall be brought butt-to-butt in the couplings. Joints shall be mechanically tight. Conduit shall be protected against damage and the entrance of water or foreign material during construction.

2. Ninety-degree bends of conduit with a diameter larger than 1 inch shall be made with factory-made elbows. Conduit elbows larger than 2 1/2 inches shall be long radius. Field-made bends and offsets shall be made with an approved hickey or conduit-bending machine. Changes in directions of runs shall be made with symmetrical bends or cast-metal fittings.
3. At connections to sheet metal enclosures and boxes, a sufficient number of threads shall project through to permit the bushing to be drawn tight against the end of the conduit, after which the locknut shall be pulled up sufficiently tight to draw the bushing into firm electrical contact with the box. Conduit shall be fastened to sheet metal boxes and cabinets with two locknuts where required by NFPA 70 where insulating bushings are used, where bushings cannot be brought into firm contact with the box, and where indicated.

4. Conduit joints shall be made with tapered threads set firmly. Each length of conduit cut in the field shall be reamed before installation. Where conduit is threaded in the field, each threaded end shall consist of at least five full threads. Corrosion-inhibitive compound (cold galvanizing paint) shall be used on all conduit threads or any locations where the original hot galvanized surface has been compromised.

5. Conduit stubbed-up through concrete floors for connections to free-standing equipment except motor-control centers, cubicles, and other such items of equipment shall be provided with a minimum of a 12 inch riser above the floor slab is of sufficient thickness; if not, a floor box shall be provided and set flush with the finished floor. Conduits installed for future use shall be terminated with a coupling and plug set flush with the floor.

3.01 SUPPORTING DEVICES

A. Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.

B. Coordinate with the building structural system and with other electrical installations.

C. Conform to manufacturer's recommendations for selection and installation of supports.

D. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.

E. Support parallel runs of horizontal raceways together on trapeze type hangers.

F. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1 1/2 inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4 inch diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.
G. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on raceway terminals.

H. Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.

I. Install sleeves in concrete slabs and walls and all other fire rated floors and walls for raceways and cable installations. For sleeves through fire rated wall or floor construction, apply UL listed fire-stopping sealant in gaps between sleeves and enclosed conduits and cables.

3.02 BOXES AND FITTINGS

A. Pullboxes shall be furnished and installed where necessary in the conduit system to facilitate conductor installation. Conduit runs longer than 100 feet or with more than three right angle bends shall have a pull box installed at a convenient intermediate location.

B. Boxes and enclosures shall be securely mounted to the building structure with supporting facilities independent of the conduit entering or leaving the boxes.

C. Bonding jumpers shall be used around concentric or eccentric knockouts.

D. Installation of Outlet Boxes
   1. Use nonmetallic boxes in corrosive areas such as chemical feed area and as designated on the Plans.
   2. Use explosion proof boxes in Hazardous areas as identified on the Drawings.
   3. Use cast metal boxes in all other locations. Each box with associated covers and fittings shall have a NEMA rating for each location installed.

E. Installation of Pull and Junction Boxes
   1. Refer to Table 2.03A for specific area NEMA requirements.
   2. Use general-purpose boxes (NEMA 1) in finished areas with framed construction.
   3. Use dust-tight and oil-tight boxes (NEMA 12) in other dry interior areas.
   4. Use explosion proof boxes (NEMA 7) in hazardous areas as designated on the Plans.
5. Use watertight boxes (NEMA 4) for exterior and wet locations on outdoor structure where moisture is present.

6. Use corrosion resistant watertight boxes (NEMA 4X) for wet locations and corrosion filled areas, such as the chemical feed area, and as identified on the Drawings.

3.03 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.04 STARTUP & COMMISSIONING

A. Provide in accordance with Division 01 General Requirements.

3.05 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01  SUMMARY

A. Provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install underground duct banks, manholes and handholes including all necessary excavation, backfill and surface restoration.

B. Provide underground conduit duct banks with manholes and hand holes for power, and lighting circuits as shown on the Drawings.

C. Coordination: Duct bank routing when shown on the Drawings is diagrammatic. Coordinate installation with piping and other underground systems and structures and locate clear of interferences. Coordinate manhole and handhole installation with piping, sheet piling and other underground systems and structures and locate clear of interferences.

D. Related Requirements

1. Division 26, Section 26 05 00 Common Work Results For Electrical
2. Division 26, Section 26 05 33 Raceways And Boxes For Electrical Systems
3. Division 26, Section 26 05 19 Low-Voltage Electrical Power Conductors And Cables
4. Division 26, Section 26 05 26 Grounding And Bonding For Electrical Systems

1.02  PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03  REFERENCES

A. Reference Standards

1. National Electrical Manufacturers Association (NEMA)
2. The American National Standards Institute (ANSI)
3. The Institute of Electrical and Electronic Engineers (IEEE)
4. Insulated Cable Engineers Association (ICEA)
5. National Electrical Code (NEC)
7. ANSI A14.3, Safety Requirements for Fixed Ladders
8. OSHA
9. ASTM
   a. ASTM A 48, Gray Iron Castings
   b. ASTM D756, Procedure E: Accelerated Service Exposure
   c. ASTM G53: Recommended Practice for Operating Light and Water Exposure on Nonmetallic Materials (with a U.V.A. 340 bulb)
   d. ASTM D570, Section 5, 6.1, 6.5: Water Absorption
   e. ASTM D790: Flexural Properties
   f. ASTM D635: Flammability Test

B. Definitions
   1. Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.
   2. Duct bank: 2 or more conduits or other raceway installed underground in the same trench or concrete envelope.
   3. Handhole: An underground junction box in a duct or duct bank with cover accessible from grade.
   4. Manhole: an underground utility structure, large enough for a person to enter, with facilities for installing and maintaining cables. Where required manholes shall comply with the Utility Companies requirements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Shop Drawings
   1. Layouts showing the proposed routing of duct banks and the locations of manholes, handholes and areas of reinforcement
2. Profiles of duct banks showing crossings with piping and other underground systems

3. Typical cross sections

4. Installation procedures

5. Manufacturer's technical information for manholes, handholes and accessories proposed for use

6. Drawings showing interior and exterior manhole and handhole dimensions and details of openings, jointing, inserts, reinforcing, size and locations of openings, and accessory locations

7. Certificate of concrete and steel used in underground pre-cast concrete utility structures, according to ASTM C858

8. Product Data for nonmetallic conduit and manhole accessories

C. Record Drawings

1. Layouts showing the actual routing of duct banks including the dimensions and depth of the top of duct bank below grade. Record Drawings for duct banks should also include cross sections of the duct bank indicating the circuit, use, conduit size, orientation and number of conduits.

2. Locations of manholes, handholes, and areas of reinforcement

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 DUCT BANK CONDUIT

A. Duct: Schedule 40 and Schedule 80 PVC conduit and fittings in accordance with Division 26, Section ‘Raceways and Boxes for Electrical Systems’.
B. Rigid Steel Conduit: Rigid steel conduit and fittings in accordance with Division 26, Section ‘Raceways and Boxes for Electrical Systems’.

2.02 HANDHOLES

A. The pull/splice box underground enclosures shall be constructed of polymer concrete consisting of sand and aggregate bound together with a polymer resin. Internal reinforcement may be provided by means of steel, fiberglass, or a combination of the two. Handholes for installation in roadways shall concrete reinforced H20 traffic rated.

B. Enclosure

1. The enclosure must be manufactured with an open bottom and a removable cover. The enclosures shall be green or concrete gray in color.

2. The enclosures shall be designed to be installed flush to grade with the cover fitting flush to the box.

3. The enclosures shall be suitable for installation in either direct or buried native soil, embedded in concrete, or embedded in asphalt surfacing. (A concrete collar is required for installation in asphalt).

4. The enclosures shall be of a stackable design for greater installation flexibility.

5. All covers are to be equipped with a minimum of two stainless steel lockdown mechanisms. All covers shall have a logo recessed into the cover and it shall read LIGHTING.

6. All enclosure covers will have some type of recessed access point to allow removal of the cover with a hook. The access points will be placed in such a location to allow for the greatest amount of leverage and safety possible.

7. Enclosures shall be designed and suitable for installation and use through a temperature range of minus 40ºC (minus 40ºF) to 60ºC (140ºF).

8. A certified copy of all test reports must be signed and stamped by a registered professional Engineer and submitted prior to shipment of products.

C. Material Requirements

1. Permanent deflection of any surface shall not exceed 10 percent of the maximum allowable static design load deflection.

2. The cover shall be rated at a minimum of Tier 15 per ANSI 77 Tier ratings. If the hand hole is located within a road it must be rated AASHTO H-20.
3. The covers shall be skid resistant and have a maximum coefficient of friction of 0.50 on the top surface of the cover. Coatings will not be allowed.

4. Any point on the covers must be able to withstand a 70 foot-pound impact administered with a 12-pound weight having a “C” tup (ASTM D-2444) without puncturing or splitting. The test shall be performed with the cover resting on a flat, rigid surface such as concrete or a 1 steel plate.

5. Covers shall have molded lettering, LIGHTING as applicable.

6. Fastening devices used to secure the cover to the box shall be capable of withstanding a minimum torque of 15 foot-pounds and minimum straight pullout strength of 750 pounds.

7. Comply with the following acceptance standards.
   
a. UL Listed
   b. ANSI/SCTE 77 2017
   c. UV Degradation ASTM G-154
   d. Fire Resistance RUS 7CFR 1755.910
   e. Chemical Resistance ASTM D-543
   f. Water Absorption ASTM D-570
   g. Impact Resistance ASTM D2444
   h. Accelerated service ASTM D-756

D. Acceptable level of quality for handholes: equivalent to Quazite, Oldcastle, Pencell, or approved equal.

2.03 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 GENERAL

A. Concrete shall be measured, mixed and placed, and compacted as required in Division 03.

B. Provide not less than 3 inches of concrete between the outside of a duct and the earth. Provide not less than 2 inches of concrete between adjacent ducts. Refer to Drawings for spacing requirements. Provide side forms for each duct bank.

C. All duct line concrete pours shall be continuous between manholes or handholes and between manholes or handholes and structures.
D. Where duct lines pass through concrete walls, concrete envelopes shall be
extended through the finished flush with inside surfaces. Watertight construction
joints of an approved type shall be provided.

E. Duct banks shall be reinforced when laid on backfill covering new pipelines,
roads, parking lots or any subject to vehicular traffic. Beneath these areas,
install reinforcing bars as shown on the Drawings, extending 10 feet beyond area
needing protection.

F. Duct lines shall be laid in trenches on mats of gravel not less than 6 inches thick
and well graded.

G. All electrical duct banks shall be colored red for safety purposes.

H. Install raceways to drain away from buildings. Raceways between manholes or
handholes shall drain toward the manholes or handholes. Raceway slopes shall
not be less than 3 inches per 100 feet.

I. Make raceway entrances to buildings and vaults with hot dipped rigid galvanized
steel conduit not less than 10 feet long. Conduits which are not concrete encased
for runs below floor slabs in slab-on-grade construction shall be hot dipped rigid
galvanized steel conduit. Conduits which are concrete encased for runs below
floor slabs in slab-on-grade construction shall be encased under the slab to their
respective equipment.

J. Raceway terminations at manholes shall be with end bells for PVC conduit and
insulated throat grounding bushings with lay-in type lugs for metal conduit.

3.02 PROJECT CONDITIONS AND COORDINATION

A. Coordination with other Underground Utilities

1. Locate all existing underground utilities through the use of an
underground utility piping location Services Company. Locate the existing
underground utilities and piping before any excavation is to begin.

2. Coordinate conduit routing, duct bank and manholes with other new and
existing underground utilities. Revise locations and elevations as required
to suit field conditions and ensure that conduits, duct runs, manholes, and
handholes do not interfere with existing and new underground utilities and
piping.

3.03 INSTALLATION

A. Provide excavation and backfilling required for ductbank manhole and handhole
installation.
B. Make duct bank installations and penetrations through foundation walls watertight.

C. Assemble duct banks using non-magnetic saddles, spacers, and separators. Position separators to provide 3-inch minimum separation between the outer surfaces of the ducts.

D. Firmly fix ducts in place during pouring of concrete. Carefully spade and vibrate the concrete to insure filling of all spaces between ducts.

E. Make bends with sweeps of not less than 48-inch radius or 5 degree angle couplings.

F. Make a transition from non-metallic to PVC coated rigid steel conduit where duct banks enter structures or turn upward for continuation above grade. Terminate the ducts in insulated grounding bushings. Continue ducts inside buildings with steel, metallic conduit.

G. Where ducts enter manholes and handholes, terminate the ducts in suitable end bells.

H. Provide expansion/deflection fittings in accordance with the requirements specified in Division 26, Section Raceways and Boxes for Electrical Systems.

I. Do not backfill with material containing large rock, paving materials, cinders, large or sharply angular substances, corrosive material, or other materials that can damage or contribute to corrosion of ducts or cables or prevent adequate compaction of fill.

J. Slope duct runs for drainage toward manholes and away from buildings with a slope of approximately 3 inches per 100 feet.

K. After completion of the duct bank and prior to pulling cable, pull a mandrel, not less than 12 inches long and with a cross section approximately 1/4 inch less than the inside cross section of the duct, through each duct. Then pull a rag swab or sponge through to make certain that no particles of earth, sand or gravel have been left in the duct.

L. Install a bare stranded copper duct bank ground cable in each duct bank envelope. Make ground electrically continuous throughout the entire duct bank system. Connect ground cable to building and station ground grid or to equipment ground buses. In addition, connect ground cable to steel conduit extensions of the underground duct system. Provide ground clamp and bonding of each steel conduit extension, where necessary to maintain continuity of the ground system. Terminate ground conductor at last manhole or handhole for outlying structures.

M. Install a warning ribbon approximately 12 inches below finished grade over all underground duct banks. The identifying ribbon shall be a PVC tape, 3 inches
wide, yellow color, permanently imprinted with CAUTION BURIED ELECTRIC LINE BELOW in black letters.

N. Plug and seal all empty spare ducts entering buildings and structures. Seal all ducts in use entering buildings and structures. Seal shall be watertight, O-Z/Gedney Type Dux Duct Sealing Compound or equal.


P. Install manholes and handholes where shown on Drawings. Verify final locations in field.

Q. Complete installation of manholes and handholes so that structures are watertight. Provide expansion/deflection fitting for each conduit entry into the manholes.

R. Provide sump opening in manhole floor.

S. Provide grading rings or brick stacks for manholes when required to adjust manhole cover to proper grade. Stacks shall be a minimum of 12 inches in height, constructed on the roof slab or cone section on which the manhole frame and cover shall be placed. The height of the stack shall be such as is necessary to bring the manhole frame to the proper grade.

T. Cable Racks

1. Provide cable hooks to support each cable on each rack along the cable run within the manholes.

2. Individually support each cable at each hook on porcelain insulators.

3. In the manhole, securely tie each cable in place at each insulator block to prevent excessive movement of insulators, cables, or fireproof tape. Tie cables with non-metallic 3/4 inch strapping tape as manufactured by 3M or tie down with nylon straps.

U. Conduits shall extend 3 inches above concrete slab surface, unless otherwise indicated. All conduits shall be bushed to protect cables and provide means for grounding.

V. Duct Bank Conduit Spacers: Non-metallic, snap together intermediate and bottom pieces, sized for conduit diameter and code spacing. Carlon Span-Loc or approved equal. Separators shall be compatible with the conduit utilized. The joints of the conduits shall be staggered by rows and layers to provide a duct line having the maximum strength. During construction, partially completed duct lines, shall be protected from the entrance of debris such as mud, sand, and dirt by means of suitable conduits plugs. As each section of a duct line is completed, a testing mandrel not less than 12 inches long with a diameter 1/4 inch less than the
size of the conduit, shall be drawn through each conduit, after which a brush having the diameter of the duct, and having stiff bristles shall be drawn through until the conduit is clear of all particles of earth, sand and/or gravel; conduit plugs shall then be immediately installed. Provide a plastic pull rope, having a minimum of 3 additional feet at each end, in all spare ducts.

3.04 DUCT BANK INSTALLATION

A. All bends shall have a radius greater than 36 inches or 12 times conduit inside diameter whichever is greater.

B. Install duct with minimum slope of 4 inches per 100 feet. Slope duct away from building entrances.

C. Install no more than equivalent of three 90-degree bends between pull points.

D. Provide suitable fittings to accommodate expansion and deflection where required.

E. Use suitable separators and chairs installed not greater than 4 feet on centers. Conduit separation shall be per code, and not less than 3 inches.

F. Securely anchor duct to prevent movement during concrete placement. Use re-bar holders at spacers and secure with No. 4 re-bar driven into the earth at a minimum of 1 foot.

G. Connect to manhole wall using No. 6 re-bar dowels. Dowels shall be located at each corner, and 12 inches on center. Insert dowels minimum 3 inches into manhole and 3 feet into duct bank.

H. Tops of concrete-encased ducts shall be
   1. Not less than 24 inches and not less than shown on the Drawings, below finished grade
   2. Not less than 30 inches and not less than shown on the Drawings, below roads and other paved surfaces

I. Tops of direct burial ducts and conduits shall be
   1. Not less than 24 inches and not less than shown on the Drawings, below finished grade
   2. Not less than 30 inches and not less than shown on the Drawings, below roads and other paved surfaces

3.05 PRE-CAST MANHOLE INSTALLATION

A. Install and seal pre-cast sections in accordance with manufacturer’s instructions.
B. Install manholes plumb.

C. Attach cable racks to inserts after manhole installation is complete.

D. Provide 12 inches minimum 3/4” crushed stone under manholes, and 12 inches gravel fill around manholes.

E. Conduit/Ductwork penetration shall be grouted and sealed. Penetration shall be watertight.

3.06 CONDUIT WATERPROOFING (USE ONLY WHEN GROUND WATER MAY BE AN ISSUE)

A. Waterproofing of conduit joints shall conform to the following

1. Non-metallic PVC Conduit, temperature rated for 90 degrees C. The end of the conduit shall be liberally coated with approved wall weather quickset clear cement before joining. Joint shall be inserted into the coupling, pushing firmly and rotating conduit until it reaches the pre-formed stopping ridge within the coupling.

2. The entire work area of the joint, plus a minimum distance of 6 inches both ways, shall be thoroughly cleaned (with a solvent if recommended by the respective manufactures) removing all foreign debris such as dirt, sand and mud prior to the following Work being started.

3. Pipe insulating putty shall be applied to the entire circumference of the coupling ends to provide a smooth tapered surface.

4. Apply quick drying, non-sag, rubber-based primer to the conduit joints, extending the primer application the entire length of the proposed tape wrap.

5. Apply an all-weather, corrosion protection tape to the conduit joint area providing two full half-lap wraps the entire length of the joint; which is considered a minimum distance of 4 inches past the end of the coupling in both directions.

6. Install heat-shrinkable tubing to the conduit joint area. Tubing shall extend a minimum distance of 2 inches past the end of the tape wrap in both directions.

3.07 CABLE PULLING

A. The inspection, handling, storage, temperature conditioning prior to installation, bending and training limits, pulling limits, and calculation parameters for installation of all cables must comply with the manufacturer’s recommendations. For ease of installation and prevention of cable damage, the Contractor shall
utilize quadrant blocks located properly along the cable run. Failure to comply with any of the above shall make this Contractor responsible for any cable failures that occur within the manufacturer’s Warranty Period.

B. Cable lubricant shall be soapstone, graphite, or talc for rubber or plastic jacketed cables.

C. Lubricants for assisting in the pulling or jacketed cables shall be those specifically recommended by the cable manufacturer.

D. Cable pulling tensions shall not exceed the maximum pulling tensions recommended by the cable manufacturer.

E. All medium voltage cables shall be individually fire/arc proofed.

3.08 CABLE TERMINATING

A. Terminations of insulated power and lighting cables shall be protected from accidental contact, deterioration of coverings and moisture by the use of terminating devices and materials. Terminations shall be made using materials and method as indicated or specified herein or as designed by the written instruction of the cable manufacturer and termination kit manufacturer.

3.09 GROUNDING

A. Duct banks shall be grounded with a bare stranded copper ground wire that is run within the duct bank and is bonded and grounded at both ends. Conduit shall not be used as the ground conductor.

B. Manholes shall be grounded with ground rods. A bare stranded copper ground wire from the ground wire loop shall be used to bond together and ground the manhole cover frame, ladder support bracket, concrete inserts, cable racks, duct bank ground conductors, and the shields of any medium voltage cables that are spliced in the manhole.

C. Grounding: Install a ground rod for each manhole. Bond all exposed metal manhole accessories and the concrete reinforcing rods with bare copper wire and connect to the ground rod and to the ductbank ground cable. Provide foam sealant for rod penetration in manhole floor for watertight seal.

D. Install a bare stranded copper duct bank ground cable in each duct bank envelope. Make ground electrically continuous throughout the entire duct bank system. Connect ground cable to building and station ground grid or to equipment ground buses. In addition, connect ground cable to steel conduit extensions of the underground duct system, manholes, and handholes. Provide ground clamp and bonding of each steel conduit extension, where necessary to maintain continuity of the ground system.
3.10 FIELD QUALITY CONTROL
   A. Provide in accordance with Division 01 General Requirements.

3.11 STARTUP & COMMISSIONING
   A. Provide in accordance with Division 01 General Requirements.

3.12 CLOSEOUT ACTIVITIES
   A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Luminaires and lampholders
   2. Lamps
   3. Poles and brackets

B. Related Documents:
   1. Division 26: Section 26 05 00 Common Work Results For Electrical Systems
   2. Division 26: Section 26 05 33 Raceways And Boxes For Electrical Systems
   3. Division 26: Section 26 05 26 Grounding And Bonding For Electrical Systems

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Furnish products listed by Underwriters Laboratories, Inc., ETL Testing Laboratories, or other testing firm acceptable to the Owner.

B. Conform to requirements of ANSI/NFPA 70.

C. Conform to requirements of NFPA 101.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.
B. Submit shop drawings, product data, test data, warranties, and other information as appropriate for the following:

1. Luminaires
2. Poles
3. Pole bases

C. Shop Drawings: Indicate construction details for products which are not manufacturer's standard, when product data does not adequately describe fixture physical characteristics, or upon request by Engineer.

D. Product Data: Provide product data for each luminaire and lighting unit.

E. For LED lighting fixtures, submit US DOE LED Lighting Facts label, and IES L70 rated life.

F. Submit luminaire shop drawings in booklet form with a separate sheet for each luminaire type. Indicate clearly on each sheet the proposed luminaire "type" designation, manufacturer, luminaire lamp, and ballast designation.

G. Submittals shall indicate materials, finishes, metal gauges, overall and detail dimensions, sizes of electrical and mechanical connections, fasteners, welds, joints, end conditions, provisions for the work of others and similar information.

H. A photometric test report showing photometric candlepower distribution, brightness, coefficients of utilization, and paint reflectance shall be included for all fixtures. Photometric reports shall be prepared for actual fixture, lamp, lens, and ballast combination. Certify data as that taken under National Bureau of Standards calibrated test conditions according to standards of the Illuminating Engineering Society; upon request, submit photometric test of proposed fixture prepared by an independent testing laboratory such as ETL.

I. The submittals shall state whether or not the fixture, as an assembly, has been UL tested and approved.

J. Upon request, submit sample products for inspection. Provide luminaires identical with approved samples; retain approved samples at site for comparison until after all other luminaires have been shipped to site and installed. Transportation charges for samples shall be paid by Contractor. Unapproved samples will be returned at Contractor's expense. Upon notification of disapproval, immediately submit new samples that meet contract requirements.

K. Upon request by Engineer, provide computerized illumination calculation data for specified interior or exterior areas in digital or isofootcandle format and in such detail as requested.
L. Operating and Maintenance Instructions: Provide maintenance and operating instructions for battery powered lighting units. Include technical data sheets and parts ordering information for components used in all luminaires.

M. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

B. Warranty all lighting and components for one year after acceptance of the work and at no additional cost to the Owner, promptly provide and install replacements for luminaires or components which are defective in materials or workmanship; or repair installed equipment at the job site as necessary to restore first class operating condition. For any time during the warranty period that luminaires are not fully functional due to defects in materials or workmanship, provide, install, and remove suitable temporary lighting. Warrant replacement luminaires in a similar manner for a period of one year following replacement including replacement of defective replacements.

C. Warrant ballasts, batteries, and occupancy sensors as further specified herein.

D. Provide products of firms regularly engaged in the manufacture of interior luminaires or components of similar types and ratings to those required. Such products shall have been in satisfactory use in similar applications for not less than two years.

1.07 DELIVERY, STORAGE AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Deliver luminaires and their components to job site, factory assembled and wired to the greatest extent practical, in strict accordance with approved shop drawings, samples, certificates and catalog cuts.

C. Protect exposed finishes during manufacture, transport, storage and handling; replace damaged materials.

D. Luminaires shall be stored under cover, above the ground, in clean, dry areas, and be tagged and/or marked as to type and site destination.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.
PART 2 – PRODUCTS

2.01 GENERAL

A. Provide lighting fixtures as listed on the Lighting, Lamping, and Fixture Schedule on the drawings and as specified herein that meet the performance and quality standard for that fixture. Substitutes shall be equal in all respects including mechanical, electrical, physical, performance, photometric, and quality characteristics except minor variances in construction details which do not affect overall quality or performance are permitted.

B. Accessories: Provide required accessories for mounting and operation of each luminaire as indicated.

2.02 LUMINAIRES

A. Luminaires shall be weatherproof, heavy duty, outdoor types designed for efficient light utilization, adequate dissipation of lamp and ballast heat, and safe cleaning and relamping.

B. Illumination distribution patterns, BUG ratings and cutoff types as defined by the IESNA shall be as shown on the drawings.

C. Incorporate ballasts in the luminaire housing, except where otherwise shown on the drawings.

D. Lenses shall be frame-mounted, heat-resistant, borosilicate glass, with prismatic refractors, unless otherwise shown on the drawings. Attach the frame to the luminaire housing by hinges or chain. Use heat and aging-resistant, resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

E. Lamp sockets for high intensity discharge (H.I.D) fixture shall have locking-type porcelain enclosures in conformance to the applicable requirements of ANSI C81.61-09 and UL 496-08.

F. Pre-wire internal components to terminal strips at the factory.

G. Bracket-mounted luminaires shall have leveling provisions and clamp-type adjustable slip-fitters with locking screws.

H. Materials shall be rustproof. Latches and fittings shall be non-ferrous metal.

I. Provide manufacturer's standard finish, as scheduled on the drawings. Where indicated on drawings, match finish process and color of pole or support materials.

J. Luminaires shall carry factory labels, showing complete, specific lamp and ballast information.
2.03 LED DRIVERS

A. LED drivers shall meet the following requirements:

1. Drivers shall have a minimum efficiency of 85%.
2. Starting Temperature: -40 degrees C (-40 degrees F).
3. Input Voltage: 120 to 480 (±10%) volt.
4. Power Supplies: Class I or II output.
5. Surge Protection: The system must survive 250 repetitive strikes of “C Low” (C Low: 6kV/1.2 x 50 μs, 10kA/8 x 20 μs) waveforms at 1-minute intervals with less than 10% degradation in clamping voltage. “C Low” waveforms are as defined in IEEE/ASNI C62.41.2-2002, Scenario 1 Location Category C.
6. Power Factor (PF): ≥ 0.90.
7. Total Harmonic Distortion (THD): ≤ 20%.
9. Drivers shall be reduction of hazardous substances (ROHS)-compliant.

2.04 POLES

A. Provide poles designed for wind loading of 100 miles per hour determined in accordance with AASHTO LTS-2 while supporting luminaires having effective projected areas for fixtures indicated. Poles shall be anchor base type designed for use with underground supply conductors. Anchor bolts shall be steel rod having a minimum yield strength of 50,000 psi; the top 12 inches of the rod shall be galvanized per ASTM A 153.

B. Aluminum Poles: Provide aluminum poles manufactured of corrosion resistant aluminum alloys conforming to AASHTO LTS-2 for Alloy 6063-T6 or Alloy 6005-T5 for wrought alloys and Alloy 356-T4 (3,5) for cast alloys. Poles shall be seamless extruded or spun seamless type, and primed and painted factory finish. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire.

C. Steel Poles: AASHTO LTS-2. Provide steel poles having minimum 11-gage steel with minimum yield/strength of 48,000 psi and primed and painted factory finish, color as indicated on the drawings. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire.
2.05 FOUNDATIONS FOR POLES

A. Foundations shall be pre-cast concrete, having 3000 psi minimum 28-day compressive strength.

B. Foundations shall support the effective projected area of the specified pole, arm(s), luminaire(s), and accessories, such as shields, banner arms, and banners, under wind conditions previously specified in this section.

C. Place concrete in spirally-wrapped treated paper forms for round foundations, and construct forms for square foundations.

D. Rub-finish and round all above-grade concrete edges to approximately 6 mm (0.25-inch) radius.

E. Anchor bolt assemblies and reinforcing of concrete foundations shall be as shown on the drawings. Anchor bolts shall be in a welded cage or properly positioned by the tiewire to stirrups.

F. Prior to concrete pour, install electrode per Section 26 05 26, ‘Grounding And Bonding For Electrical Systems.’

2.06 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Luminaire Pole Bases: Construct as indicated on drawings. Furnish pole bases to site contractor for installation under Division 2, coordinate installation. Install poles centered, with no base overlap, on bases plumb; provide for adjustment.

B. Provide anchor bases with galvanized steel anchor bolts, threaded at the top end and bent 90 degrees at the bottom end. Provide galvanized nuts, washers, and ornamental covers for anchor bolts. Concrete for anchor bases, polyvinyl chloride (PVC) conduit ells, and ground rods shall be as specified in Section 16050.

C. Thoroughly compact backfill with compacting arranged to prevent any pressure between conductor, jacket, or sheath and the end of conduit ell. Adjust poles as necessary to provide a permanent vertical position with the bracket arm in proper position for luminaire location.

D. Grounding: Ground noncurrent-carrying parts of equipment, including metal poles. Where the copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable for this purpose.
E. Insulation Resistance Test: Perform before and after connection of fixtures and equipment.


G. Field Tests: Upon completion of installation, conduct an operating test to show that the equipment operates in accordance with the requirements of this specification section.

3.02 ADJUSTING AND CLEANING

A. Clean lenses and diffusers at completion of work.

B. Aim adjustable luminaires and lampholders as indicated or as directed.

C. Clean paint splatters, dirt, and debris from installed luminaires.

D. Touch up luminaire and pole finish at completion of work.

E. Relamp luminaires which have failed lamps at completion of work.

3.03 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.04 STARTUP & COMMISSIONING

A. Provide in accordance with Division 01 General Requirements.

3.05 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 31 05 19.13

GEOTEXTILES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Perform work in accordance with this Section, the Drawings, and applicable reference standards listed in Article 1.02.

   a. Work included under this Section includes, but is not limited to, providing and installing geotextile fabrics as shown on the Drawings and as specified herein.

B. Related Work specified elsewhere includes:

   Earth Moving……………………………… Section 31 20 00
   Erosion and Sedimentation Controls ……… Section 31 25 00
   Storm Drainage Utilities…………………… Section 33 40 00

1.02 REFERENCES

A. ASTM D4491
B. ASTM D4533
C. ASTM D4632
D. ASTM D4751
E. ASTM D4873
F. ASTM D6241

1.03 SUBMITTALS

A. Product Data

1. Submit the manufacturer's product Specifications, a Sample swatch, and instructions pertaining to storage, handling, and installation of geotextiles as specified and shown on the Drawings.

B. Manufacturer Reports
1. Submit manufacturing quality control certificates for representative rolls for each lot of material delivered to the Site, signed, and certified by responsible parties employed by the manufacturer. Materials delivered without testing certification shall be rejected by the Engineer.

1.04 QUALITY ASSURANCE

A. Qualifications for Geotextile Manufacturer as follows:

1. The geotextile manufacturer shall be a well-established firm with more than two years’ experience in the manufacture of geotextile fabrics.

1.05 DELIVERY, STORAGE AND HANDLING

A. Geotextile materials shall be delivered and stored in a protective wrapping, which shall protect the materials from ultraviolet (UV) radiation, and other mediums that may reduce the physical properties of the material. Labeling, packaging, and handling to conform to ASTM D4873.

B. Transportation of the geotextiles shall be the responsibility of the Contractor.

C. Handling, including unloading, stockpiling, storage, and protection of the geotextiles on-site shall be the responsibility of the Contractor. The geotextiles shall be stored off the ground and out of direct sunlight, and shall be protected from mud, dirt, dust, and moisture. Any additional storage procedures recommended by the manufacturer shall be the Contractor's responsibility.

D. The geotextile material shall be shipped and stored by appropriate means so that no damage is caused to the material.

E. Loading, unloading and moving of rolls shall be performed with appropriate equipment, which is safe and suitable for the Work.

F. Material shall be stored in a secure area to protect against debris, weather, dirt, equipment traffic, theft, and vandalism. Use unbroken opaque packaging or provide protective cover to prevent exposure of the geotextile to sunlight during storage.

G. Storage of the rolls shall be on a surface that does not cause distortion of the roll or wraps, impeding installation in any way.

H. Rolls shall not be stacked higher than recommended by the manufacturer.

I. Rolls of geotextile shall be moved using a structural steel insert placed within the core tube of the roll. Lifting slings or chains must be attached to the pipe itself to support the roll. Slings and chains must be kept from damaging the roll through the use of a spreader bar. Alternatively, if a forklift is used to move the rolls, a single tooth pipe capable of supporting the roll in cantilever may be used, placed.
carefully through the roll core tube. At no time should the rolls be lifted by sliding the forks under the roll.

J. A sufficient quantity of geotextile material should be accumulated on-site prior to start of Work to allow efficient and continuous Work without stoppage resulting from lack of materials.

PART 2 – PRODUCTS

2.01 GEOTEXTILES

A. The Contractor shall furnish materials with Minimum Average Roll Values (MARV) that meet or exceed the criteria specified in Table 31 05 19-1. The geotextile shall be stock products. The manufacturer shall furnish products specifically manufactured to meet the Specifications of this Project unless authorized by the Engineer.

B. Subject to compliance with the requirements contained in this Section, acceptable manufacturers and models of geotextiles include but are not limited to:


2. Woven Geotextile – Amoco, LINQ Industrial Fabrics, Mirafi, Propex, Skaps.

2.02 SEWING THREAD

A. The thread for seaming geotextiles shall be polyester with chemical and UV light resistance properties, equal to or greater than the fabric itself. The thread color shall contrast the color of the fabric.

2.03 MANUFACTURING QUALITY CONTROL

A. Sampling and testing of the geotextile shall be performed by the manufacturer at a minimum of once every 100,000 square feet of production to demonstrate that the material conforms to all requirements in Table 31 05 19 – 1 of this Section. At a minimum, each lot of material defined as a group of consecutively numbered rolls manufactured from the same production line, shall have one sample collected and tested for conformance. A quality control certificate shall be produced from this testing. The quality control certificate shall include roll number identification, sampling procedures used, and the results of the quality control testing, including descriptions of the test methods used. The quality control tests to be performed are outlined in Table 31 05 19 – 1 of this Section.

B. Additional testing shall be performed by the manufacturer if a geotextile sample fails to meet the quality control requirements of this section. The manufacturer shall sample and test each roll manufactured in the same lot or at the same time as
the failing roll. Sampling and testing of rolls shall continue until a pattern of acceptable tests results is established. Additional testing of individual rolls may also be performed by the manufacturer to more closely identify the non-complying rolls and to qualify individual rolls. All additional testing shall be at no additional expense to the Owner.

2.04 MANUFACTURER'S DOCUMENTATION

A. The manufacturer shall submit notarized certificates signed by an authorized employee indicating the material meets the above Specifications.

B. The geotextile fabric shall be supplied in rolls and labeled at a minimum according to ASTM D4873 with the following information:

1. Manufacturer's Name;
2. Product Identification (style number);
3. Roll Number;
4. Roll Weight;
5. Roll Dimensions; and
6. Geotextile Type.

PART 3 – EXECUTION

3.01 ACCEPTANCE

A. Any geotextile material that is not certified in accordance with Part 2 of this Section will be rejected by the Engineer. The rejected material shall be replaced with suitable material at no additional cost to the Owner.

3.02 INSTALLATION

A. Install where shown on Drawings in accordance with manufacturer’s instructions and the following.

B. Preparation: Provide smooth graded surface, free of large stones, tree roots and limbs, or other debris prior to placement of geotextiles.

C. Deployment and Covering:

1. Unroll fabric in area to be used, in down-slope direction.

2. Wrinkles and folds in the geotextile shall be minimized, including straightening, to smooth out creases or irregularities in the sections. Geotextile shall be placed in intimate contact with adjacent materials.
Overlap adjacent fabric sides and ends a minimum of 12 inches. Gaps and tears will not be allowed. The Contractor shall replace geotextile damaged as a result of storage, handling, or placement. Overlaps should be placed in such a manner so the uphill panel is shingled over the downhill panel.

3. Placement of overlying stone shall begin at the base of the slope and proceed up-slope; fabric overlap shall remain intact. The geotextile shall be installed in a relaxed condition and be free of tension or stress upon completion of the installation. Stretching of the geotextile to fit is not allowed. Overlying stone placement on flat areas shall be worked in the direction of the fabric overlap.

D. Protection:

1. Secure geotextile from wind damage during and after construction.

2. Construction equipment shall not travel directly over any in-place geotextiles. Maintain 1-foot minimum cover above the fabrics for low ground pressure tracked vehicles, and 3-foot minimum cover for wheeled vehicles or heavy tracked vehicles. Low ground pressure tracked vehicles shall have contact pressure of 8-psi or less. Heavy tracked vehicles are considered having ground contact pressures above 8-psi.

3. No more than 14 days shall elapse between the day when the reinforcing geotextile is unrolled and when a subsequent layer is placed to cover it. No more than 30 days shall elapse between the day when the cushioning geotextile is unrolled and when a subsequent layer is placed to cover it. Material exposed to sunlight or weather for longer duration shall be replaced.

E. Patching:

1. All rips and tears shall be patched with a minimum 3-foot overlap in each direction from the perimeter of the damaged area. The repair patch shall be heat bonded to the underlying geotextile.

2. If a damaged area is greater than half the width of the fabric roll, then the entire roll width of the damaged area shall be cut out and a new section placed over the area with a minimum 3-foot overlap at each end. The up-slope end of the patch shall be placed under the existing up-slope fabric and the down-slope end of the patch placed over the down-slope fabric.
### TABLE 31 05 19-1

#### NON-WOVEN GEOTEXTILE

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#### WOVEN GEOTEXTILE

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**Notes:**
- MARV = Minimum Average Roll Value
- All strength properties specified are for the weaker principle direction.

**END OF SECTION**
SECTION 31 10 00

SITE CLEARING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Perform work in accordance with this Section, the Drawings, and applicable reference standards listed in Article 1.02.

a. Work included under this Section includes, but is not limited to, site clearing and grubbing as required to perform the Work as shown on Drawings and as specified herein.

b. The Contractor shall limit the area of clearing and grubbing to the minimum area possible to allow for the proper installation of the Work and to preserve all plantings, trees, shrubs, grass and natural vegetation to the maximum possible extent. Clearing and grubbing shall not extend beyond the limits as identified on the Construction Drawings.

B. Related Work specified elsewhere includes:

Selective Demolition and Restoration Section 02 41 14
Erosion and Sedimentation Controls Section 31 25 00

1.02 REFERENCES

A. Definitions

1. Clearing: Cutting and disposing of trees, downed timber, stubs, brush, bushes, snags, rubbish, debris, and other objectionable matter and materials and the removal of fences, signs, walks, guard rails, curbs and other items to be removed or restored.

2. Grubbing: Removal and disposal of stumps, roots, duff, foundations and other objectionable matter and materials to a minimum of 6 inches below original ground surface.

3. Topsoil: Friable loam surface soil found in a depth of not less than 4 inches from the original ground surface. “Satisfactory” topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inch diameter, and free of weeds, roots, and other objectionable material.
1.03 DELIVERY, STORAGE AND HANDLING

A. Store trees, plants and shrubs in protected areas and provide water to keep them in thriving condition for replanting.

B. Do not obstruct roads, driveways, sidewalks, gutters and drainage ditches, swales and channels with stored materials.

1.04 SITE CONDITIONS

A. Site conditions as shown on the Drawings were determined by topographic surveys and conditions may have changed since the surveys were made. Verify current existing site conditions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify Site conditions. Trees, plantings, vegetation, and other item locations shown on Drawings were determined by actual surveys and conditions may have changed.

B. Verify limiting boundaries, such as permanent and temporary easements, property lines, rights-of-way and grading limits, have been located and marked.

C. Verify pipe routings and other items of Work have been accurately located and clearly marked.

D. Verify existing utilities to remain have been accurately located and clearly marked for protection.

3.02 PREPARATION

A. Mark all items which are to be removed, trimmed, cut, or removed and preserved. Inspect these items with the Owner prior to start of Work. Do not remove or trim unmarked items unless approved in writing by the Owner.

B. Protect existing trees and other vegetation indicated to remain in place or not specifically called out to be removed, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
C. Protect existing objects not indicated to be removed. Avoid interference with the use of, and passage to and from, adjacent buildings, facilities, driveways, walks, drainage systems and roads.

D. Saw-cut pavements required to be removed in advance, including running track base, roads, driveways and walks, but do not remove until the proposed Work is ready to be installed.

E. Do not remove signs, guard rails, fences and other controls, safety and warning devices until just prior to the installation of the Work and reassemble and/or replace immediately if those items are to remain.

F. Do not remove fences until the adjacent property owners affected are notified at least 4 days in advance. Do not remove fencing more than 48 hours in advance unless written permission from property owner is received.

G. Leave items affecting traffic, safety, lives and the containment of humans and animals and essential to the protection of property or the operation of a business in place as long as possible and replace as soon as possible when such items must be removed. Provide the necessary temporary controls, including signage to maintain off-site operations in a safe manner.

3.03 IMPLEMENTATION

A. General

1. The use of explosives for clearing and grubbing operations is prohibited.

2. Limit the area of clearing and grubbing to the minimum area possible to allow for proper installation of Work and to preserve plantings and natural vegetation to the maximum extent. Conduct Work so that present growth will blend with the limits of construction and a natural appearance will be attained.

3. Confine clearing and grubbing operations to:
   a. areas where Work will be performed but to minimum extent possible to allow proper installation of Work;
   b. the Owner’s property;
   c. within grading limits as shown on the Drawings; and
   d. within construction limit line for work as shown on the Drawings.

4. Employ measures to avoid erosion as specified in the Drawings and Specification Section 31 25 00.

5. Do not disturb property markers unless absolutely necessary. If necessary to disturb or remove a property marker, employ a registered land surveyor
licensed in the state where the Project is located to re-establish the property marker location, mark area, and replace property marker immediately.

B. Stripping Topsoil and Fill Materials

1. Strip topsoil within limits as designated on Drawings and as required to prevent mixing with underlying subsoil or objectionable material.

2. Stop topsoil stripping at a sufficient distance to prevent damage to main root systems of trees indicated to be left standing.

3. Stockpile topsoil on-site in storage piles in areas approved by the Owner and provide for drainage of surface water. Cover storage piles as necessary to prevent windblown dust and erosion.

4. Surplus loam, fill, and topsoil not required for completion of the Work shall be managed in accordance with the Soil Management Plan. Stockpile material in sufficient volume on-site as required to complete the Work, at a location approved by the Owner and maintain and protect material until Work is complete. Remove and/or dispose of remaining excess fill materials in accordance with all local, State, and Federal regulations. Excess satisfactory topsoil shall remain the property of the Owner, or shall be disposed of, as directed by the Owner and Engineer.

C. Trees and Plantings

1. Remove only those items marked for removal.

2. Notify property owner in advance of tree trimming or removal to allow property owner to cut and remove trees and retain debris, unless otherwise directed.

3. Minimize damage to trees that are to be left standing. Immediately remove and legally dispose of debris.

4. Trim trees evenly to achieve neat severance with the least possible damage to the tree.

5. Apply wet burlap to prevent drying out where roots are cut or damaged as required to complete the Work.

D. Pavements, Walks, and Curbs

1. Remove existing pavements, walks, and curbs to the limits shown on Drawings, or if not shown, to the minimum extent possible as required to complete the Work.

2. Saw-cut asphalt and concrete paved surfaces before removal, to the lines necessary to accommodate installation of the proposed work.
3. Carefully remove curbs to the minimum extent possible. Terminate
removals at a joint.

4. Existing granite curb designated for removal shall be protected and reused
on-site, as shown on the Drawings or as directed. Excess granite curb shall
remain the property of the Owner and shall be protected and stored on the
Owner’s property, as directed by the Owner.

E. Promptly remove and legally dispose of materials not specified to be stored or re-
used. Burning of any kind is strictly prohibited.

F. Replant and restore surfaces. Comply with requirements of Section 32 90 00 –
Planting and Seeding.

G. Replace and restore items and materials that have been removed in order to
perform the Work to the original condition as approved. Replace items damaged
during removal, storage or re-installation.

END OF SECTION
SECTION 31 20 00

EARTH MOVING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Perform earth moving in accordance with this Section and applicable reference standards listed in Article 1.02.

a. Work included under this Section includes, but is not limited to, providing all labor, materials, equipment, supervision, quality control, and incidentals necessary to excavate, dewater and control surface water, backfill, conduct compaction and testing of materials, rough grade, and remove sediment and soil and other subsurface materials for the duration of the project and appurtenant work, complete, in accordance with the Contract Documents and Federal, State, and local regulations.

b. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the Contractor.

B. Related Work specified elsewhere includes:

Selective Site Demolition and Restoration Section 02 41 14
Site Clearing Section 31 10 00
Erosion and Sedimentation Controls Section 31 25 00
Flexible Paving Section 32 12 00
Storm Drainage Utilities Section 33 40 00

1.02 REFERENCES


B. Manual of Accident Prevention in Construction - Associated General Contractors of America, Inc.

C. 29 CFR 1926/1910 - OSHA Safety and Health Standards for Construction Industry

D. ASTM C136 (Sieve Analysis)

E. ASTM D422

F. ASTM D698 (Compaction Test)
G. ASTM D1557
H. ASTM D1556 (sand cone)
I. ASTM D1557 (Compaction Test)
J. ASTM D2167 (rubber balloon)
K. ASTM D2216
L. ASTM D2434 (Permeability Test)
M. ASTM D2487 soil classification groups GW, SM, SW, and SP
N. ASTM D6938: Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
Q. The Draft Soil Management Plan.
R. The conditions of all permit approvals (to be provided under separate cover upon receipt).

1.03 SUBMITTALS
A. Submit the results of testing demonstrating compliance with Part 2 of this Specification.

1.04 QUALITY ASSURANCE
A. Testing and Inspection: The Contractor shall be responsible for all testing, unless otherwise noted. The cost for retesting due to failed tests shall be the responsibility of the Contractor. The Contractor shall be responsible for coordinating with the Engineer to review the results of all testing.

B. The Owner assumes no responsibility for the accuracy of the test results as shown in the appended Soil Sampling Memorandum prepared by Woodard & Curran, dated January 17, 2020. Sampling results included in this document are provided only as a general indication of the materials likely to be found adjacent to the representative sample locations. The Contractor shall examine this document and evaluate the need to make their own investigation and gather other data to determine the conditions of the soils likely to be encountered.
C. The Engineer may observe the Contractor’s earthwork activities, including excavation, dewatering, subgrade preparation, backfilling, and on-site reuse of excavated materials. The Contractor shall provide sufficient notice to the Engineer to allow the Engineer to be present to observe the Work. The Contractor shall cooperate with the Engineer in all respects to facilitate any testing or observations to confirm compliance with the requirements of this section.

D. Materials placed or compacted which do not conform to Project Specifications for the area, shall be removed and replaced with appropriate, suitable, material when directed by the Owner or the Engineer at no additional cost to the Owner. Costs related to testing or replacement of nonconforming Work or materials, or delays caused by nonconforming Work or materials, shall be paid for by the Contractor at no additional cost to the Owner.

E. Do not allow or cause any of the work performed or installed to be covered up or enclosed prior to all required inspections, tests, and approvals. Should any of the Work be enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.

F. The presence of the Engineer shall not relieve the Contractor of its responsibility to perform the Work in accordance with the Contract Documents, nor shall it be construed to relieve the Contractor from full responsibility for the means and methods of construction, protection of Site improvements against damage, and for safety on the construction Site. The Contractor shall comply with all applicable Laws, rules, ordinances and Regulations of the Federal Government, the State of Maine, and the City of Portland relative to the Work performed on the Site and any Contractor activities on or adjacent to the Site.

G. The Contractor shall adhere to the applicable requirements of the Specifications, OSHA Standards, and to all other applicable ordinances, codes, statutory rules, and Regulations of federal, state, and local authorities having jurisdiction over the Work of this section.

H. The Contractor may conduct additional field and laboratory testing or screening tests for its own information at no additional cost to the Owner.

I. In case of conflict between Regulations or between Regulations and Specifications, the Contractor shall comply with the strictest applicable codes, Regulations, or Specifications.

J. Contractor shall coordinate pre-excavation meetings with Owner and Engineer.

K. Inspection of Material Sources: The Engineer shall have the right to inspect off-site sources of materials and order additional tests of these materials to verify compliance with these Specifications, if deemed necessary, at the expense of the Contractor. Re-testing of materials may be requested by the Engineer following inspection by an independent laboratory retained by the Contractor.
1.05 SITE CONDITIONS

A. Existing Conditions:

1. Prior to Work, the Contractor shall become thoroughly familiar with the site conditions.

2. The Contractor may make his own borings, hand probes, explorations, and observations to determine soil, water levels, and other subsurface conditions at no additional cost to Owner. Coordinate with Owner prior to start of additional investigative Work.

3. The Contractor shall contact Dig Safe prior to performing any below grade work and shall maintain current Dig Safe authorization numbers and markings during all excavation activities. The locations of existing utilities as shown on the Drawings are approximate and require field verification by the Contractor prior to construction. Not all existing utilities may be shown. The Contractor shall notify all utility companies prior to commencing work, allowing sufficient time to locate and mark the locations of buried utilities. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations. Coordinate with utility companies for actual locations and shut-off services. If utilities are encountered that are not shown or that are shown incorrectly on the Drawings, notify Engineer immediately. Repair damaged utilities to satisfaction of Engineer and utility.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All materials utilized for this Project shall be obtained from a source that has been licensed or permitted for such use by local and state authorities. The Contractor shall be required to submit evidence of such if requested.

1. Suitable materials: Suitable soil materials are defined as those complying with ASTM D2487 soil classification groups GW, SM, SW, and SP.

2. Unsuitable materials: Materials containing excessive amounts of water, clay, vegetation, organic matter, debris, pavement, stones, or boulders over 6 inches in greatest dimension, frozen material, and material, which, in the opinion of the Engineer, will not provide a suitable foundation or subgrade.

3. On-site material: Any suitable material from on-site excavation that is permitted for Site reuse as specified in Section 4.5.1 of the Soil Management Plan. Material for embankments and general Site fills
outside of the building envelope may contain pieces of excavated ledge having a greatest dimension of up to 6 inches, unless otherwise approved by Engineer. All excess suitable on-site material must be used before additional material from off-site is used.

4. Inspection: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these Specifications.

5. Sieve Analysis: Submit sieve analysis in accordance with ASTM D422 for all materials prior to start of construction.

B. Aggregate Base/Base Gravel: As specified on the Drawings.

C. Aggregate Subbase: As specified on the Drawings.

D. Sand: shall be well-graded coarse sand without excessive fines and free from loam, clay, and organic matter. Beach sand shall not be used. The grading requirements are as follows:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>95 – 100</td>
</tr>
<tr>
<td>No. 16</td>
<td>50 – 85</td>
</tr>
<tr>
<td>No. 50</td>
<td>10 – 30</td>
</tr>
<tr>
<td>No. 100</td>
<td>2 – 10</td>
</tr>
</tbody>
</table>

E. Granular borrow: sand or silty sand meeting the requirements of MaineDOT Standard Specification 703.19 for Granular Borrow.

F. 1/2-inch Crushed stone: stone, or durable, clean angular rock fragments obtained by breaking and crushing rock material. Gradation shall be:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>100</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>90 – 100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>20 – 55</td>
</tr>
<tr>
<td>No. 4</td>
<td>0 – 10</td>
</tr>
<tr>
<td>No. 8</td>
<td>0 – 5</td>
</tr>
</tbody>
</table>

G. 3/4-inch Crushed stone: stone, or durable, clean angular rock fragments obtained by breaking and crushing rock material. Gradation shall be:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>100</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>90 – 100</td>
</tr>
<tr>
<td>½&quot;</td>
<td>20 – 55</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>0 – 15</td>
</tr>
<tr>
<td>No. 4</td>
<td>0 – 5</td>
</tr>
</tbody>
</table>
H. 2-Inch Crushed Stone: 2-Inch Crushed stone (MaineDOT 703.31) shall be obtained from rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces or other objectionable matter. The stone, which shall be similar to railroad ballast, shall meet the following gradation requirements:

<table>
<thead>
<tr>
<th>Sieve Designation</th>
<th>% Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2½ inch</td>
<td>100</td>
</tr>
<tr>
<td>2 inch</td>
<td>95-100</td>
</tr>
<tr>
<td>1 inch</td>
<td>0-30</td>
</tr>
<tr>
<td>¾ inch</td>
<td>0-5</td>
</tr>
</tbody>
</table>

I. Soil Filter Media: must be a mineral soil with between 4 to 7% fines (passing #200 sieve) with less than 2% clay content. This material should be uniform, free of stones, stumps, roots, or other objects larger than two inches.

J. Underdrain Bedding: bedding should be clean, free-draining material meeting the requirements of 2014 MaineDOT Standard Specification 703.22 Underdrain Backfill Material - Type B.

K. Reuse of Site Soils: All reuse of Site soils must comply with the conditions outlined in Section 4.5.1 of the Soil Management Plan.


2.02 TESTING

A. Geotechnical Lab Testing: Procedures for testing approved materials delivered to the Site shall be performed in accordance with the following standards:

<table>
<thead>
<tr>
<th>Laboratory Analysis</th>
<th>Minimum Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>1 every 1,500 cubic yards</td>
</tr>
<tr>
<td>Moisture Content</td>
<td>1 every 1,500 cubic yards</td>
</tr>
<tr>
<td>Moisture/Density</td>
<td>1 every 1,500 cubic yards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Analysis</th>
<th>Analysis Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>ASTM D422</td>
</tr>
<tr>
<td>Moisture Content</td>
<td>ASTM D2216</td>
</tr>
<tr>
<td>Moisture/Density</td>
<td>ASTM D1557</td>
</tr>
</tbody>
</table>

Notes:
1. Moisture content not required for crushed stone products.
2. Moisture/Density test not required for Topsoil or Organically Enriched Topsoil Products.

B. In-Place Testing: Procedures for testing soil shall be performed in accordance with the following standards:

<table>
<thead>
<tr>
<th>In-Place Testing</th>
<th>Analysis Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Density & Moisture Content………………ASTM D6938

C. Costs: Costs for source testing and in-place testing shall be paid by the Contractor. If test results are unacceptable to the Engineer, additional tests may be performed, with costs paid by Contractor. In the event it becomes necessary to utilize material from a new source, costs for testing a new source shall be borne by the Contractor. All costs of reworking and retesting materials shall be the responsibility of the Contractor.

PART 3 – EXECUTION

3.01 PREPARATION

A. The Contractor shall obtain, maintain, and pay for all required permits, licenses, and approvals prior to commencing work of this and other related sections.

B. The Contractor shall coordinate with the Engineer and Owner and shall receive approval of traffic management procedures, water diversion, temporary fencing, security, laydown, and temporary facilities prior to start of construction.

C. Provide and install erosion control measures as specified in Specification Section 31 25 00, as shown on the Drawings, and in accordance with applicable Regulations and permits. No work shall proceed prior to the installation of erosion and sedimentation controls and approval by the Engineer.

3.02 PROTECTION

A. Paved surfaces: Do not operate equipment that will cause damage on paved surfaces to remain. Any damage to existing roads or other paved surfaces caused by construction equipment shall be repaired at no additional cost to Owner.

B. Maintain excavations with approved barricades, lights, and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.

C. Protect structures, utilities, monitoring wells, property monuments, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. The Contractor shall be responsible for actual cost of repair or replacement of any items damaged as a result of construction activities, including any professional services required for inspection of repairs and replacement.

D. The Contractor shall protect all uncovered earth throughout construction from damage or erosion.

E. Prohibitions: No work is to occur on parcels or properties where an access agreement has not been entered by and between the property owner and the Town.
F. To the extent practical, existing trees, lawns, and shrubbery to remain on property not owned or controlled by the Owner shall be protected from injury. Where access agreements have been executed with properties adjacent to the Work, provisions involving trees and shrubbery designated to remain and/or removed will be established and enforced by the Engineer. All existing trees to remain and which may be damaged by construction operations shall be boxed and protected and all such protection shall be maintained until completion of the Work. Disturbance of trees, shrubbery, or unpaved ground surfaces beyond the limits of excavation without Engineer approval shall be subject to in-kind restoration by Contractor at no additional expense to the Owner.

G. Rubber tired construction equipment should not operate directly on the native silt and clays when wet. Low ground-pressure equipment will be needed when operating on native subgrades and temporary haul roads overlying geotextile fabric may be necessary.

3.03 EXCAVATION

A. Excavation shall include the removal of all encountered materials, including, but not limited to soil, boulders, asphalt pavement, concrete, miscellaneous debris, buried and abandoned foundations and utilities, incidental structures and all other materials encountered to the limits shown on the Drawings, or designated in the Specifications. Where excavations are required to be made into the Zone of Influence (ZOI) below an existing or new foundation, utility, or other structure, the Contractor shall design excavation and bracing system, underpinning, or other system approved by the Engineer to provide support to protect the soil within the ZOI from loosening and becoming disturbed, and protect the structure from movement. The ZOI beneath a structure or utility is defined by imaginary lines extending outward 2 feet laterally beyond the bottom edge of a footing or from the spring line of a utility and down on a one horizontal to one vertical (1H:1V) slope to the top of the natural inorganic bearing soils. Soils located within the zone of influence provide foundation support. Excavation and backfilling shall be performed during the day.

B. Excavation shall be performed as recommended in the geotechnical report.

C. All unexpected environmental conditions (e.g., significant staining, odor, debris, or free petroleum product) shall be reported to the Environmental Professional immediately in accordance with the Soil Management Plan.

D. Call Dig Safe prior to beginning any excavation.

E. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction.

F. Excavations shall not undermine existing foundations, streets, sidewalks, utilities, and structures.
G. All topsoil, soils with organics and roots, soft and yielding soils, pavements, and relic structures should be removed from beneath the proposed paved areas.

H. Rock excavation includes removal and disposal of materials and obstructions encountered that cannot be excavated with modern, track-mounted, heavy-duty excavating equipment without drilling or ripping; includes boulders larger than 2 cubic yards each.

I. Excavation of bearing surfaces should be completed with a smooth-edged bucket.

J. Earth excavation: Remove and dispose of obstructions visible on ground surface, underground structures, utilities, and items indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation.

K. Excavation in paved areas: Cut pavement prior to excavation to provide a clean, uniform edge. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the Work. Use shoring and bracing where sides of excavation will not stand without undermining pavement.

L. Excavation for structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection. In excavating for foundations, take care not to disturb bottom of excavation. Excavate the final 1.0 feet to foundation subgrade level using methods and equipment designed to prevent disturbance to the bearing soils (by hand or by smooth bucket excavator). Trim bottoms to required lines and grades to leave solid base to receive other Work. When excavating in clay material, use a smooth-edged bucket to avoid disturbance of the bottom of the excavation. Use shoring and bracing as required by OSHA standards.

M. Excavation for utility trenches: Excavate to widths shown on the Drawings and depths indicated or required to establish indicated slope and invert elevations. Produce an evenly graded, flat trench bottom at the subgrade elevation required for installation of pipe and bedding material. Place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill along edges of trenches. Load excavated material directly into trucks, unless otherwise permitted by the Engineer.

N. Unauthorized excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial Work directed by Engineer, including refilling, shall be at Contractor's expense.

O. Refilling unauthorized excavation: For trenches, use 3/4-inch crushed stone. A geotextile barrier may be required at the discretion of the Engineer. Elsewhere,
backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

P. Excavation of unsuitable materials: If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper only at the direction of the Engineer and replace excavated material with 3/4-inch crushed stone on a non-woven geotextile fabric.

Q. Material Storage: Stockpile and maintain suitable surplus excavated materials for re-use as backfill within the Project limits. Place, grade, and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Handle, process, re-handle, segregate, and stockpile materials during the course of the Work. Existing on-site materials may require processing prior to reuse. Processing may include crushing, blending, screening, and other measures to meet the requirements and as directed by the Engineer. Only those soils and other materials approved by the Engineer shall be reused on-site.

3.04 STABILITY OF EXCAVATIONS

A. Side slopes of excavations shall comply with OSHA Regulations and local codes. Shore and brace where sloping is not possible due to space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

3.05 LINES, GRADES AND TOLERANCES

A. The Contractor shall be responsible for establishing all lines, grades and other survey control to complete the Work as shown on the Drawings.

B. Maintain the moisture content of backfill materials as necessary to allow for the material to be readily placed to the degree of compaction specified.

C. Construct finished soil and backfill surfaces to the elevations indicated on the Drawings.

D. Compact backfill materials to the specified degree of compaction.

3.06 DEWATERING

A. All dewatering and groundwater management activities shall comply with Section 4.6 of the Soil Management Plan.

B. Perform all Work in the dry. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding Project Site and surrounding area. Groundwater should be controlled to at least 12 inches below subgrades during construction.
C. The Contractor shall be responsible for control, pumping, and legal disposal of groundwater, precipitation, or other water which enters or accumulates in excavations to maintain stable subgrades and allow all below-grade construction to be conducted in the dry. Do not allow water to accumulate in excavations. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey water removed from excavations and rainwater to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

E. Utilize discharge filter systems to remove sediment prior to discharge to receiving waters.

3.07 SUBGRADE PREPARATION

A. Subgrades shall be prepared as recommended in the geotechnical report.

B. Care shall be taken to avoid disturbance to subgrades.

C. Provide a firm, smooth, stable, undisturbed subgrade. Loose, disturbed soil shall be removed by hand shovel.

D. Movement of construction equipment directly over exposed final subgrades, except for compaction equipment, is not permitted.

E. Prevent soil subgrades from freezing and frost. Soil subgrades that freeze prior to concrete or backfill placement shall be thawed and re-compact, or removed and replaced with non-frozen backfill, lean concrete or other acceptable material as approved by the Engineer.

F. Subgrades should be sloped to promote groundwater movement toward the perimeter of the proposed paved areas.

G. The subgrade should be proof-rolled with several passes of a roller-compactor weighing at least 10 kips. Soft and yielding areas should be over-excavated and replaced with additional compacted subbase gravel or Granular Borrow at no additional cost to the Owner. A woven geotextile fabric such as Mirafi 600X (or equivalent) should be placed on the subgrade soils under the entire parking lot area (except over drainage lines) to help provide a more stable subgrade.

H. The subgrade should be static rolled if subgrade soils are wet and soils are being disturbed during densification and vibratory rolled if subgrade soils are relatively dry and densification is not disturbing the subgrade soils.
I. Where subgrades are below bottom of proposed gravel subbase material, additional compacted subbase gravel or MaineDOT Standard Specification 703.19 Granular Borrow should be placed over the stable subgrade and geotextile fabric.

3.08 BACKFILL AND FILL

A. Place suitable soil material in layers to required elevations as shown on the Drawings. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers beginning at lowest area to be filled. Do not impair drainage.

B. Place backfill and fill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers, within building, utility trenches and other confined areas. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment.

D. Place backfill and fill materials evenly adjacent to structures to required elevations. Use care in backfilling to avoid damage or displacement of underground structures and piping. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

E. Do not allow heavy machinery within 5 feet of structures during backfilling and compacting.

F. Backfill excavations as promptly as Work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including dampproofing, and waterproofing;

2. Inspection, approval, and recording locations of underground utilities;

3. Removal of concrete formwork;

4. Removal of shoring and bracing, and backfilling of voids with suitable materials;

5. Removal of trash and debris from excavation;
6. Permanent or temporary horizontal bracing is in place on horizontally supported walls; and

7. Cast-in-place concrete structures have developed adequate strength.

G. Backfilling trenches: See trench detail on the Drawings. Bed pipe in 3/4-inch crushed stone, unless otherwise indicated. Limits of bedding and requirements for remaining trench backfill shown on Drawings. Backfill under all existing utility pipes crossed by new utility pipes or Work with 3/4-inch crushed stone. The crushed stone backfill shall extend continuously from the bedding of the new pipe to the utility pipe crossed, including a 6-inch thick envelope of crushed stone all around the existing utility pipes. The 3/4-inch crushed stone backfill shall stand at its own angle of repose. No haunching or forming with common fill will be allowed.

H. Replacement of unsuitable materials:
   1. Below normal grade: See paragraph 3.04K.
   2. Above normal grade: Replace unsuitable material with suitable material from on-site. All excess suitable material must be used before additional material from off-site is used.

3.09 COMPACTION

A. Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer. In open areas, compact with self-propelled compaction equipment. Within utility trenches and other confined areas, compact with hand-operated compaction equipment. Adjust moisture content of soil as required. Remove and replace material that is too wet to compact to required density. Compact each horizontal layer of fill and slope as Work progresses.

B. Degree of compaction: Compact to the following minimum densities

<table>
<thead>
<tr>
<th>FILL AND BACKFILL LOCATION</th>
<th>DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under structure foundations and slab on grade</td>
<td>95% of max.</td>
</tr>
<tr>
<td>Top 3 feet under pavement</td>
<td>95%</td>
</tr>
<tr>
<td>Below top 3 feet under pavement</td>
<td>92%</td>
</tr>
<tr>
<td>Structural fills</td>
<td>95%</td>
</tr>
<tr>
<td>Pipe Bedding</td>
<td>95%</td>
</tr>
<tr>
<td>Adjacent to structure foundation walls, retaining walls, and tank walls</td>
<td>92% - 95%</td>
</tr>
<tr>
<td>Trenches through gravel areas</td>
<td>95%</td>
</tr>
<tr>
<td>Trenches through other non-paved areas</td>
<td>90%</td>
</tr>
<tr>
<td>Embankments</td>
<td>90%</td>
</tr>
</tbody>
</table>
Maximum density: ASTM D1557.
Field density tests: ASTM D1556 (sand cone) or ASTM D2167 (rubber balloon), or ASTM D6938

C. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

D. Minimum Number of In-Place Density Tests:
   1. Trenches: The Contractor shall take at least one field density test of the base gravel for every 200 linear feet of trench.
   2. Paved Areas: The Contractor shall take at least one field density test of base gravel for every 2,000 sq. ft. of paved area, but in no case less than 3 tests.

Perform additional Work to obtain proper compaction if in-place densities do not meet specified densities at no additional cost to the Owner.

E. Protection of Fill:
   1. The Contractor shall take the necessary steps to avoid disturbance of subgrade and underlying soils during excavation and backfilling operations. Procedures for excavating and backfilling shall be revised as necessary to avoid disturbance of subgrade and underlying soils, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering, and other acceptable control measures. Disturbance shall include the deterioration of backfill after placement and satisfactory compaction due to the Contractor's operations, such as moving equipment, hauling trucks, etc. All excavated or backfilled areas or subgrades that become disturbed during construction shall be removed and replaced with acceptable materials.
   2. Prevent materials below constructed foundations from freezing. Materials that become frozen shall be removed and replaced, including foundations, at no additional cost to the Owner.
   3. At the completion of Work, all ground surfaces shall be left in a firm, stable, unyielding, reasonably uniform condition, free of ruts and surface irregularities in accordance with grading requirements shown on the Drawings.

3.10 GRADING

A. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finish surface within specified tolerances and
compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grading outside structure lines: Grade areas adjacent to structures to drain away from structures and to prevent ponding.

C. Finish surfaces free from irregular surface changes and as follows:
   1. Lawn or unpaved areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
   2. Pavements: Shape areas under pavement to line, grade, and cross-section, with finish surface not more than 1/2 inch above or below required top of base gravel elevation.

D. Compaction: After grading, compact subgrade surfaces as required.

3.11 EROSION & SEDIMENT CONTROL

A. Provide erosion and sediment control measures as specified in the Soil Management Plan, Section 31 25 00, and as shown on Drawings.

3.12 MAINTENANCE

A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

C. Where settling is measurable or observable at excavated areas during Warranty Period, remove surface, base gravel, fill material, and add required backfill material. Compact and replace surface. Restore appearance, quality, and condition of surface to match adjacent Work, and eliminate evidence of restoration Work to greatest extent possible.

3.13 DISPOSAL OF EXCESS MATERIALS

A. Excess material shall be stockpiled on-site at a location to be approved by the Engineer and Owner. All stockpiles shall be properly managed and maintained in accordance with Section 4.3.3 and all other sections of the Soil Management Plan. Materials not suitable for re-use on-site shall be disposed of off-site in accordance with the Soil Management Plan, Federal, State, and local regulations at the Contractor’s own expense.

END OF SECTION
SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work included: All labor, equipment, supervision, materials, and quality control necessary to provide and maintain devices to control erosion and sedimentation that occur during construction operations, as shown on the Drawings and in accordance with Federal, State, and Local regulations. Undertake every reasonable precaution and do whatever is necessary to avoid erosion and sedimentation and prevent siltation of surface water bodies and depressions in the surrounding area.

B. Deficiencies in control measures indicated by failures or erosion and sedimentation shall be immediately corrected by the Contractor by providing additional measures or different techniques to correct the situation and prevent subsequent erosion and sedimentation.

C. The duration of soil exposure on embankments, excavations, and graded areas shall be minimized to the maximum extent practicable.

D. Related Work specified elsewhere includes:

- Geotextiles………………………………… Section 31 05 19.13
- Earth Moving……………………………… Section 31 20 00
- Planting and Seeding……………………… Section 32 90 00

1.02 QUALITY ASSURANCE

A. Conform to all requirements of applicable Federal, State, and local regulations, including, but not limited to, the Maine Department of Environmental Protection Standards.

B. Erosion and Sediment Control Measures shall be installed and maintained in accordance with manufacturer’s specifications and in accordance with the Maine Erosion and Sediment Control BMPs Handbook published by the Maine Department of Environmental Protection, latest edition.

C. The Contractor shall conduct work in accordance with the notes and details specified on the Drawings. The Contractor is required to complete all inspections and maintenance described in the Contract Documents, and provide copies of this documentation to the Engineer.

D. The Contractor shall meet with the Engineer to discuss erosion and sedimentation control requirements prior to the start of Site activities.
E. Prior to the start of construction, the Contractor shall notify the City of Portland and the Engineer.

F. During construction, the installation, maintenance, and operation of erosion and sediment control measures shall be subject to inspection and enforcement by the City of Portland and Maine Department of Environmental Protection.

1.03 SCHEDULE OF IMPLEMENTATION

A. General: Pollution prevention measures and erosion and sedimentation control measures shall be employed before, during, and after sediment and soil are exposed. Prior to sediment and soil disturbance or storage, the Contractor shall first implement measures to the greatest extent practicable to ensure that such measures are in-place before the activity occurs. Additional measures shall be employed as the Work progresses. Implementation and maintenance shall occur as necessary until the Site is permanently stabilized.

B. Soil Stabilization: All disturbed areas shall be stabilized with temporary and permanent erosion control practices as soon as practicable, but no more than 14 days after construction activity on a particular portion of the Site has temporarily or permanently ceased.

C. Deficiencies in the erosion control measures identified by the inspections shall be corrected within three calendar days by the Contractor at no additional cost to the Owner.

D. Dust Controls: The Contractor shall determine frequency of implementation of dust controls. The Engineer has the authority to require additional dust suppression.

1.04 SUBMITTALS

A. Typical erosion and sedimentation control devices are shown on the Drawings for the Contractor’s use. The Contractor shall submit to the Engineer an Erosion and Sediment Control Plan prepared in accordance with all federal, state, and local requirements that includes a list of erosion and sedimentation control products intended to be used on the Site. The Erosion and Sediment Control Plan shall be submitted to Engineer for review and approval prior to the start of Work.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General: The Contractor shall use the following materials to implement and construct erosion control measures. Other materials require approval by the Engineer prior to use.

B. Sediment Barrier: Sediment Barriers shall be as specified on the Drawings.
C. Hay Bales:

1. Consist of rectangular shaped bales of straw weighing at least 40 pounds per bale. The minimum dimension of any bale shall be 18-inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least 3.0 feet in length.

2. Free from noxious weed seeds and rough or woody materials.

3. Baled within twelve months of use.

D. Compost Mulch Sock: Filter socks shall be of biodegradable materials suitable for erosion control applications and shall be Filtrexx Siltsoxx or approved equal. Wood posts shall be 2-inch by 2-inch in section and at least 4.5 feet in length.

E. Temporary Seed: Temporary seed is only required when or if it is impractical to establish permanent protective vegetation on disturbed earth by October 15. Seed variety and applied rate are selected based upon the date of application, and is determined by the following table. Equivalent seed mixture based on its suitability for use in controlling erosion of the various soil types and slopes may be used as approved by the Engineer.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Seed</th>
<th>Applied Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1 to 7/1</td>
<td>Oats</td>
<td>1.8 lb./1,000 ft²</td>
</tr>
<tr>
<td>8/15 to 9/15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/1 to 7/1</td>
<td>Annual Ryegrass</td>
<td>0.9 lb./1,000 ft²</td>
</tr>
<tr>
<td>5/15 to 8/15</td>
<td>Sundangrass</td>
<td>0.9 lb./1,000 ft²</td>
</tr>
<tr>
<td>9/15 to 10/15</td>
<td>Winter Ryegrass</td>
<td>2.6 lb./1,000 ft²</td>
</tr>
</tbody>
</table>

F. Permanent Seed: As specified in Specification Section 32 90 00, Planting and Seeding.

G. Dust Controls: The use of any commercial grade dust suppressant must be approved by the Engineer. The Contractor shall provide Engineer with the specifications on the proposed dust suppressant, if other than water, at least 14-days prior to the start of construction activities. If use of a commercial grade dust suppressant is approved and requested by the Engineer, the Contractor shall furnish all necessary equipment and apply the material as directed by the manufacturer.

H. Additional Materials: As specified on the Drawings and in Specification Section 31 20 00, Earth Moving.
PART 3 – EXECUTION

3.01 EROSION & SEDIMENT CONTROL IMPLEMENTATION

A. Contractor shall install erosion and sedimentation controls prior to Site clearing and grading activities in accordance with the Drawings. No construction activities shall be initiated until erosion and sedimentation controls are installed and a pre-construction site walk has been performed by the Engineer.

B. Sediment Barriers: Install as shown on the Drawings and relocate as needed for construction.

C. Temporary Seed:
   1. Seed with appropriate seeds and application rates from the table in paragraph 2.01 of this Section. Seed shall be sown at the rate indicated, on the pure live seed basis.
   2. Mulch areas where temporary seeding has been applied. Do not mulch seeded areas where matting will be immediately installed.
   3. If temporary seeding does not achieve adequate growth by November 1, an additional layer of mulch shall be applied at that time.

D. Permanent Seed: As specified in Specification Section 32 90 00, Planting and Seeding.

E. Riprap: Install as shown on the Drawings.

F. Crushed Stone: Crushed stone shall be placed at the direction of the Engineer.

G. Temporary Diversion: Install as needed to redirect upgradient stormwater runoff around disturbed areas; diversion measures shall be relocated as needed for construction.

H. Dust Controls: Dust and debris shall be controlled at the Site. Off-site transport of sediment, including off-site vehicle tracking, shall be prevented. The Contractor shall conduct operations and maintain the area where operations are being conducted, including sweeping and/or application of dust suppressant, as necessary, to minimize the creation and dispersion of dust. Commercial grade dust suppressant, if utilized, shall be stored in the original containers under weatherproof cover, stacked alternatively for ventilation, or in accordance with manufacturer specifications. Application for dust control shall be at a rate appropriate to suppress the dust emission and maintain a safe working zone and shall be applied in accordance with manufacturer specifications. No commercial dust suppressant shall be used within 100-feet of a wetland area or the edge of the property.
I. Stockpiles: Soil stockpiles shall be stabilized or covered at the end of each workday. All stockpiles shall be surrounded by sediment controls.

J. Other Temporary Measures:

1. Utilize other temporary erosion and sedimentation control measures as required to protect the Site or as directed by the Engineer.

2. Type and use shall be as specified on the Drawings or as identified in the Maine Erosion and Sediment Control BMPs Handbook published by the Maine Department of Environmental Protection, latest edition.

3.02 MAINTENANCE

A. Maintain and repair or replace all erosion and sedimentation controls installed in accordance with Maine standards and guidelines and manufacturer recommendations.

B. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that erosion and sedimentation controls have been properly maintained. Erosion and sedimentation controls shall be maintained by the Contractor to the satisfaction of the Engineer.

C. Erosion and sedimentation controls must be able to prevent, under normal weather conditions, both the movement of soil materials and the intrusion of sediment-laden discharges into environmentally-sensitive areas and adjacent properties.

D. Erosion and sedimentation controls shall be routinely inspected and maintained by the Contractor. The Contractor shall conduct inspections of the erosion and sedimentation controls within 24 hours after rainfall events greater than 0.25-inches, every seven days, and when directed by the Engineer. After construction has been completed, the Contractor shall conduct erosion control inspections once per month and following significant rain events for a period of one year.

E. The Contractor shall aggressively and expeditiously perform cleaning and maintenance work to remedy identified problems to the complete satisfaction of the Engineer. Damaged erosion and sedimentation controls shall be repaired or replaced after each storm event or as directed by the Engineer.

F. At a minimum, erosion and sedimentation controls shall be cleaned when sediment deposits reach 6-inches in height or ½ the height of the sediment barrier.

3.03 REMOVAL OF TEMPORARY EROSION CONTROLS

A. Remove temporary erosion and sedimentation control measures when permanent stabilization has been achieved.
B. Remove unsuitable materials, including accumulated silt or sediment removed from erosion and sedimentation controls as part of maintenance activities or upon ultimate removal of the controls, from the Site and dispose of in accordance with Federal, State, and local regulations.

C. Disturbed soil areas resulting from the removal of temporary erosion and sediment control measures shall be permanently stabilized within 30 days of removal.

END OF SECTION
SECTION 32 12 00

FLEXIBLE PAVING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Provide and install flexible pavement in accordance with this Section and applicable reference standards listed in Article 1.02.

B. Related Work specified elsewhere includes:

Selective Site Demolition and Restoration Section 02 41 14
Geotextiles Section 31 05 19.13
Earth Moving Section 31 20 00
Curbs and Gutters Section 32 16 13

1.02 REFERENCES


B. AASHTO M320-Standard Specification for PGAB.

C. ASTM D-2041 (Theoretical Maximum Specific Gravity and Density).


1.03 SUBMITTALS

A. Material Certificates: Certificates signed by material producer and Contractor stating that each material complies with specified requirements.

B. Mix Design: Provide mix design for each grade of pavement to be used at least 20 days prior to start of paving.

C. Certified Weigh Slips: If required by the Owner, provide for each truck load of bituminous material.

1.04 QUALITY ASSURANCE

A. Comply with any road opening permits issued for the Work.
B. The Contractor shall establish and control the pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

C. Contractor shall comply with Weather and Seasonal Limitations: MDOT "Standard Specification" Section 401.07. In addition, no porous pavement shall be placed between November 15 and March 15.

PART 2 – PRODUCTS

2.01 AGGREGATE BASE AND SUBBASE

A. Aggregate Base and Subbase materials shall be as specified on the Drawings and Section 31 20 00, Earth Moving.

2.02 POROUS PAVEMENT

A. Grade for Porous Asphalt Pavement shall be PG 64-28 with five pounds of fibers per ton of asphalt mix, as specified on the Drawings.

B. Asphalt: Asphalt content shall be 6-6.5%.

C. Aggregates: When crushed gravel is used as aggregate for the porous asphalt pavement, at least 75 percent, by weight, of the material coarser than the No. 4 sieve shall have at least two fractured faces, and 90 shall have one or more fractured faces. Aggregates shall have an acid insoluble content of not less than 80%.

D. Additives: A heat stable additive shall be provided to improve the anti-stripping properties of the asphalt cement. The amount of additive to be used shall be determined based on the manufacturer’s recommendations and the mix design test results.

Silicone shall be added to the asphalt cement at a rate of 1 ounce per 5,000 gallons.

All additives shall be added to the asphalt cement and thoroughly mixed while still in the asphalt storage tanks.

E. Pavement Course: Aggregate to comply with following gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4”</td>
<td>100</td>
</tr>
<tr>
<td>1/2”</td>
<td>95 – 100</td>
</tr>
<tr>
<td>3/8”</td>
<td>35 – 40</td>
</tr>
<tr>
<td>#8</td>
<td>3 – 7</td>
</tr>
<tr>
<td>#200</td>
<td>0 – 1</td>
</tr>
</tbody>
</table>
2.03 BITUMINOUS PAVEMENT
   A. Bituminous pavement shall be as specified on the Drawings and comply with materials requirements, MaineDOT Standard Specification, Section 403.

2.01 BITUMINOUS TACK COAT
   A. Comply with materials requirements, MaineDOT Standard Specification, Section 409.

PART 3 – EXECUTION

3.01 PREPARATION
   A. Do not begin paving operations until base and subbase have been accepted by Engineer.

   B. Apply bituminous prime and tack coats only when the ambient temperature in the shade is at least 50 degrees F for 12 hours immediately prior to application. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration. The binder and surface pavements should be placed during the same construction season.

   C. Pavement subgrades consisting of native silts or silty clay should be underlain with woven geotextile, such as Mirafi 600X or equivalent.

3.02 POROUS PAVEMENT
   A. Porous Asphalt Pavements shall be placed in a single lift.

   B. Compaction for porous asphalt pavements shall be between 92% and 96%.

3.03 BITUMINOUS PAVEMENTS
   A. Comply with installation requirements, MaineDOT Standard Specification, Section 401.

   B. Saw cuts and butt joints shall be used in existing pavement as indicated on the Drawings to facilitate the installation of new pavement.

3.04 BITUMINOUS TACK COAT
   A. Apply tack coat immediately prior to placing pavement adjacent to curbing, gutters, manholes, pavement, etc. for adequate bond. Tack coat should also be applied between successive lifts of bituminous pavement.

   B. Comply with installation requirements, MaineDOT Standard Specification, Section 409.
C. Bituminous pavement should be compacted to 92 to 97 percent of its theoretical maximum density, as determined by ASTM D-2041.

3.05 TRENCH PATCHING

A. Place aggregate base and subbase as shown on the Drawings.

B. Permanent Patching:

1. Remove all existing pavement and re-grade base material and compact as required.

2. Provide base and surface courses to the depths shown on the Drawings.

3.06 PROTECTION

A. Protect the asphaltic concrete paved areas from traffic until the bituminous asphalt is set and cured and does not pick up under foot or wheeled traffic.

3.07 FINAL CLEANUP

A. Remove all debris, rubbish, and excess material from the work area.

END OF SECTION
SECTION 32 16 13
CURBS AND GUTTERS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide curbs and gutters in accordance with this Section and applicable reference standards listed in Article 1.02.

B. Related Work specified elsewhere includes:

- Earth Moving..........................................................Section 31 20 00
- Flexible Paving..........................................................Section 32 12 00

1.02 REFERENCES

A. References Standards


1.03 SUBMITTALS

A. Shop Drawings

1. Dimensions of cut curbing

2. Manufacturers construction data for granite curbs

3. Manufacturers printed data on recommended installation procedures for granite curb

4. Manufacturers printed data on recommended installation procedures for slipform concrete curbing

B. Certificates: Manufacturer’s certification that products meet Specification requirements
C. Design mix: Provide mix design for 4,000 psi concrete to be used for slipform curbing at least 20 days prior to start of placement

PART 2 – PRODUCTS

2.01 PART 2 – PRODUCTS

A. Granite curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

B. Bituminous asphalt curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

C. Precast concrete curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

D. Slipform concrete curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

2.02 JOINT PAD

A. Bituminous fiber joint filler: Preformed strips of composition below, complying with ASTM D1751 Asphalt Saturated Fiberboard

PART 3 – EXECUTION

3.01 INSPECTION

A. Verify that earthwork is completed to correct line and grade.

B. Check that subgrade is smooth, compacted, and free of frost or excessive moisture.

C. Do not commence Work until conditions are satisfactory.

3.02 INSTALLATION

A. Granite curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

B. Bituminous asphalt curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

C. Precast concrete curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

D. Slipform concrete curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.
3.03 BACKFILLING

A. Granite curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

B. Precast concrete curb: Comply with material requirements of MaineDOT Standard Specification, Section 609.

END OF SECTION
SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Provide pavement markings in accordance with this Section and applicable reference standards listed in Article 1.02.

1.02 REFERENCES

A. Reference Standards:

1. MaineDOT Standard Specifications; and

1.03 SUBMITTALS

A. Product Data; and
B. Manufacturer Instructions.

PART 2 – PRODUCTS

2.01 PAVEMENT MARKINGS

A. Provide in accordance with MaineDOT Section 627.
B. General: Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type I.
C. Color: White for shoulder striping, parking spaces, and directional arrows; blue for handicapped parking symbols; yellow for other lane demarcation striping.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Apply and install pavement markings in accordance with MUTCD and MaineDOT Standard Specifications Section 627.

END OF SECTION
SECTION 32 90 00

PLANTING AND SEEDING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide topsoil, seeding, planting, and supporting materials in accordance with this Section and applicable reference standards listed in Article 1.02.

2. The work of this Section consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to supply and place planting, soils, and seeding as indicated on the Construction Drawings and as specified. This shall include, but not be limited to:

   a. Sampling and testing of any imported topsoil;
   b. Modifying and screening of existing, on-site topsoil;
   c. Providing all sampling and testing, as required by this Section;
   d. Preparation of subgrade to receive topsoil;
   e. Placing, spreading, and grading of topsoil;
   f. Seeding;
   g. Planting; and
   h. Maintaining all landscaped areas until acceptance.

3. Repair all grassed areas disturbed during performance of the Work. Where existing topsoil remains, provide seed to re-establish grass. Where necessary, provide additional topsoil.

B. Related Work specified elsewhere includes:

   Earth Moving ................................................................. Section 31 20 00
   Erosion and Sedimentation Controls ................................. Section 31 25 00

1.02 REFERENCES

A. Reference Standards

1. ANSI Z60.1 Standard Nursery Stock

1.03 SUBMITTALS

A. Submit Product Data for each type of product.

B. Certificates:

1. Submit manufacturers or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

2. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity germination, and weed seed for each grass seed species.

C. Submit list(s) of ordered plant materials to be installed, including supplier, size, genus, species and cultivars. List(s) shall include specific requests for substitutions, which must be approved in writing by the Landscape Architect.

D. Topsoil Testing:

1. All stockpile sampling shall be per ASTM D 75 and Appendices for securing samples from stockpiles.

2. Testing will be at the Contractor's expense. Submit the results of analyses and a written report by a qualified soil-testing laboratory for tests for gradation, organic content, soil chemistry, and pH. Soil analysis reports shall show recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish planting work as specified.

3. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. To facilitate review and approval of sieve analysis, provide a computer-generated gradation curve.

4. Percent of organics shall be determined by the loss on ignition of oven-dried samples. Test samples minus #10 material shall be oven-dried to a constant weight at a temperature of 450 degrees Fahrenheit.

5. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, and pH and buffer pH. A Conductivity Meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Except where otherwise noted, nutrient tests shall be for available nutrients.
E. Fertilizer:
   1. Submit product data of seeding and planting fertilizer and certificates showing composition and analysis. Submit fertilization rates for fertilizer product based upon soil testing, analysis, and recommendations.

F. No materials shall be ordered or delivered until the required submittals have been reviewed and approved. Approval shall not constitute final acceptance. The Owner's Representative reserves the right to reject, on or after delivery, any material that does not meet these Specifications.

1.04 QUALITY ASSURANCE

A. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

B. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

C. Exercise care in handling plant materials to avoid damage or stress. Handle planting stock by root ball.

D. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

E. On-site storage of plant materials: Plants shall be placed in a location protected from direct sun and construction activities. All plant material shall be watered regularly. The Landscape Architect reserves the right to reject any stored plant material exhibiting signs of stress.
1.06 SITE CONDITIONS

A. Proceed with, and complete landscape work as rapidly as portions of Site become available, working within seasonal limitations for each kind of landscape work required. When conditions detrimental to plant growth are encountered, notify the Landscape Architect before planting.

B. Locate underground utilities. Perform Work in a manner that will avoid damage.

1.07 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

   1. Failures include, but are not limited to, the following:

      a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
      b. Structural failures including plantings falling or blowing over.

   2. Warranty Periods from Date of Substantial Completion or Planting Completion, whichever is later.

      a. Trees and Shrubs: 12 months.
      b. Herbaceous and Other Plants: 12 months.

1.08 MAINTENANCE SERVICE

A. Initial Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.

   1. Maintenance Period for Trees and Shrubs: 12 months from date of Substantial Completion or Planting Completion, whichever is later.

   2. Maintenance Period for Ground Cover and Other Plants: 12 months from date of Substantial Completion or Planting Completion, whichever is later.
PART 2 – PRODUCTS

2.01 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

C. Herbaceous Plant Material: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery and remove all active blooms prior to planting.

2.02 TOPSOIL

A. Use topsoil stockpiled for re-use in landscape work, as specified in 31 10 00 Site Clearing and Grubbing. If quantity of stockpiled topsoil is insufficient, provide additional topsoil as required to complete landscape work.

B. Provide topsoil which is fertile, friable, natural loam surface soil found at a depth of not less than 4-inches from the original ground surface, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2-inches in any dimension, and debris.

C. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at Project Site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4-inches; do not obtain from bogs or marshes.

2.03 GRASS SEED AND FERTILIZER

A. Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analyst of North America. Do not use seed that has become wet, moldy, or damaged. All seed mixtures listed are proportions by weight and must meet the following minimum requirements unless stated otherwise:

1. Germination: not less than 85 percent

2. Purity: not less than 85 percent
3. Weed content: not more than 1 percent


B. Fertilizer

1. Bone meal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.

2. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

3. Commercial Fertilizer: Commercial grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
   a. Composition: Nitrogen, phosphorous and potassium in the amounts recommended in topsoil analysis reports from a qualified soil testing agency.
   b. Minimum Composition: No less than 1lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous and 2 percent potassium by weight.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Place topsoil at designated locations where plant material is to be installed or re-installed in accordance with the Drawings or as directed.

3.02 FINE GRADING

A. Immediately prior to dumping and spreading topsoil, the subgrade shall be cleaned of all stones greater than 2 inches and all debris or rubbish. Such material shall be removed from the site, not raked to the edges and buried.

B. Any topsoil delivered to the site shall be protected from erosion at all times. Materials shall be spread immediately. Otherwise, materials that set on site for more than 24 hours shall be covered with tarpaulin or other soil erosion system acceptable to the Owner's Representative and surrounded by silt fence as shown on the Drawings.

C. No topsoil shall be handled, planted, or seeded in any way if it is in a wet or frozen condition. A moist topsoil is desirable.

D. After loam borrow and required additives have been spread, carefully prepare the topsoil by scarifying, harrowing, or tilling the loam to integrate soil
additives into the top 4 inches of the topsoil. Remove all large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. Remove from unscreened soils all stones over 1 inch in diameter from the top 4 inches of the topsoil bed.

E. Sufficient grade stakes shall be set for checking the finished grades. Stakes must be set at the top of slopes. Deviation from indicated elevations that are greater than one-tenth of a foot shall not be permitted. Connect contours and spot elevations with an even slope. Finish grades shall be smooth and continuous with no abrupt changes at the top or bottom of slopes.

F. During the compaction process, all depressions caused by settlement or rolling shall be filled with additional topsoil and the surface shall be regraded and rolled until presenting a smooth and even finish corresponding to the required grades. Do not over-compact.

G. The Contractor shall install topsoil to at least a 4” depth and to the desired compaction as described herein. The Contractor shall install the soil at a higher level to anticipate any reduction of topsoil volume due to compaction, settling, erosion, decomposition, and other similar processes during the warranty period.

1. Compact loam to 88% compaction.

2. Maximum dry density for topsoil shall be determined in accordance with ASTM D698.

3. The surface area of each lift hall shall be scarified by raking prior to placing subsequent lifts of material.

H. Compact each lift sufficiently to reduce settling but not enough to prevent the movement of water and feeder roots through the soil. The topsoil in each lift should feel firm to the foot in all areas and make only slight heel prints. At completion of the topsoil installation, the soil should offer a firm, even resistance when a soil sampling tube is inserted.

I. Select equipment and otherwise phase the installation of the loam borrow to ensure that wheeled equipment does not travel over subsoil, placed fills or ordinary borrow or already installed soil. If it is determined that wheeled equipment must travel over already installed soil, provide a written description of sequencing of work that ensures that compacted soil is loosened and uncompacted as the work progresses or place one-inch thick steel plate ballast (or equivalent) over the length and width of any travel way to cover loam borrow to protect it from compaction.

J. Disturbed areas outside the limit of work shall be graded smooth and spread with a minimum of 6 inches of topsoil to the finished grade, unless specified otherwise.
3.03 SEED AND SUPPORTING MATERIAL

A. Install and apply seed and supporting materials at the rates of application recommended by the manufacturer for establishment of new lawns.

3.04 PROTECTION OF SEEDED AREAS

A. Protect seeded areas against erosion with erosion netting or other methods acceptable to the Engineer.

B. Spread mulch after completion of seeding operations to form a continuous blanket not less than 1-1/2-inches loose measurement over seeded areas.

C. Cover seeded slopes where grade is 3:1 or greater, unless otherwise noted, with temporary erosion control blanket. Roll erosion control blanket down over slopes without stretching or pulling. Lay blanket smoothly on soil surface, anchoring the blanket per manufacturer recommendations. Staple blanket at locations and frequency as recommended by the manufacturer.

D. Lightly dress slopes with topsoil to ensure close contact between erosion control blanket and soil.

3.05 PLANTINGS

A. Provide in accordance with MaineDOT Standard Specifications and Supplements and MaineDOT Construction Details.

B. Perform planting within the planting season when weather and soil conditions are suitable, and in accordance with local conditions. Do not install plants in topsoil that is in a muddy or frozen condition.

C. Prune injured roots or branches to make clean-cut ends prior to planting, utilizing clean, sharp tools, removing only injured or diseased branching.

D. Remove planting containers, baskets, and non-biodegradable materials from root balls during planting. Cut natural fiber burlap from around the trunk of trees and folded down against the root ball prior to backfilling.

E. Position trees and shrubs at intended locations shown on the Drawings.

F. Fill prepared soil around ball of plant halfway and insert plant tablets. Complete backfill, and water thoroughly.

G. Dig planting pits with level bottoms, with the width 2.5 times the diameter of root ball. Rest root ball on undisturbed grade. Backfill each plant pit in layers with thoroughly, mixed prepared soil:

1. 1 part peat moss
2. 1 part composted cow manure by volume
3. 3 parts topsoil by volume
4. 21 grams Agriform planting tablets or equal
   a. 2 tablets per 1 gallon plant
   b. 3 tablets per 5 gallon plant
   c. 4 tablets per 15 gallon plant
   d. Larger plants: 2 tablets per 1/2 inch caliper of trunk

3.06 MAINTENANCE

A. Provide maintenance of grass seeded areas immediately after planting. Maintain grass by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, re-grading, and replanting as required to establish smooth, acceptable lawn areas free of eroded or bare areas until final completion.

B. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

C. Inspect plantings for disease or pests and perform necessary corrective actions to preserve and protect the health and viability of the plantings as approved by the landscape architect.

D. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

E. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

3.07 INSPECTION AND ACCEPTANCE

A. Landscape work may be inspected for acceptance in parts agreeable to Owner, provided Work offered for inspection is complete, including maintenance.

B. Replace rejected Work and continue specified maintenance until re-inspected by Owner and found to be acceptable.

END OF SECTION
SECTION 33 40 00

STORM DRAINAGE UTILITIES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish and install storm sewer system as shown on the Drawings. This includes:
   1. Underdrain pipe and associated cleanouts;
   2. Storm drain piping and structures; and
   3. Subsurface stormwater management system.

B. Related Work specified elsewhere includes:

   Geotextiles…………………………………… Section 31 05 19.13
   Earth Moving………………………………… Section 31 20 00
   Erosion and Sedimentation Control……….. Section 31 25 00
   CMP Detention Piping……………………… Section 33 41 16
   StormFilter Structure……………………… Section 33 49 26

1.02 REFERENCES


C. The conditions of all permit approvals (to be provided under separate cover upon receipt).

1.03 SUBMITTALS

A. Manufacturer's product data and installation instructions.

C. Certified copies of tests on pipe units.

D. Buoyancy calculations and design of anti-flotation measures, as needed.

E. Construction Records: Record depth and location of the following:
   1. Structure locations and elevations;
   2. Repairs to existing pipes; and
   3. Pipe locations and elevations.
Record neatly in a permanently bound notebook and submit at Substantial Completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

PART 2 – PRODUCTS

2.01 PIPE AND FITTINGS

A. General: Provide fittings of same type and class of materials as pipe. Fitting must have single piece gasket.

B. Underdrain Pipe shall be perforated SDR 35 PVC pipe. Coiled pipes shall not be used.

C. Storm drain pipe shall be SDR 35 PVC. PVC pipe used for storm drainage shall conform to all aspects of ASTM specification D3034-73A and/or ASTM Specification F789.

2.02 PRECAST CONCRETE STRUCTURES

A. Base Sections: Precast monolithic construction.

B. Barrel Sections: Precast.

C. Top Sections: Precast eccentric and concentric cones, as specified on the Drawings.

D. Pipe to Structure Connections: Connections shall be watertight, expandable pipe sleeve with adjustable expansion ring equal to Press-Boot by Press-Seal Gasket Corp., Fort Wayne, Indiana.

E. Joints Between Precast Sections: Watertight, shiplap-type seal with two rings of one-inch diameter butyl rubber sealant.

F. Inverts: Provide inverts as shown on the Drawings. Configuration to be as required by connecting pipes and as shown on Drawings.

G. Manhole and Catch Basin Structures: Provide precast concrete structures as shown in the Construction Drawings.

2.03 FRAMES, COVERS, AND GRATES

A. Material: Cast iron, ASTM A48 Class 30.

B. Provide frames, covers, and grates as identified on the Drawings.

C. Storm Drain Manhole Frames and Covers:
1. Acceptable manufacturers: equivalent to EJ Iron, Inc.

2. Manhole cover: 30 inches in diameter labeled DRAIN in 3-inch high raised letters.

D. Catch basin frames and grates: heavy duty, bicycle safe, cascading type frame and grate. Acceptable level of quality: equivalent to Neenah Foundry products meeting specified performance requirements and sizing shown on Drawings.

E. Acceptable level of quality for cast iron catch basin trap: equivalent to Neenah Foundry product number R-3704 with vent holes, mounted in accordance with manufacturer specifications.

2.04 MISCELLANEOUS

A. Marking Tape: Lineguard III by Tri-Sales, Inc., 2-inch wide, green; detectable with magnetic locators, or approved equal.

B. Rigid Insulation: Extruded closed-cell rigid foamed polystyrene, 2-inch thickness, width of trench, Styrofoam HI-60, by Dow Chemical, or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION OF GRAVITY PIPE AND FITTINGS

A. Methods: Install in accordance with manufacturer's recommendations. Use a laser beam for line and grade unless otherwise permitted by the Engineer. Secure each length of pipe with bedding before placing next length. Plug open ends when work is suspended. Bed pipe as shown on Drawings. A 30-inch minimum cover over the top of pipe should be provided before the trench is wheel-loaded.

B. Grade and Line:
   1. Lay pipe to line and grade shown on the Drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.
   2. Line and grade may be adjusted by the Engineer as required by field conditions.

C. Conditions: Lay pipe in the dry. Do not use installed pipe to remove water from work area.

D. Flush and clean all pipe and remove all debris and materials. Flushing and cleaning methods approved by Engineer. Gravity flushing is not acceptable.
E. Underdrain: All work shall conform to the Drawings and MDOT Section 605 – Underdrains.

F. If utilities penetrate the hard clay and encounter soft trench bottoms, install 12 inches of underdrain sand followed by 1 to 2 feet of Crushed Stone wrapped in non-woven geotextile fabric to stabilize the trench bottom for installation of pipe and structures.

3.02 INSTALLATION OF MANHOLES/STRUCTURES

A. Placement: Place precast bases and structures on compacted bedding material so bottom of structure is plumb and pipe inverts are at proper elevations. Place manhole barrel and top sections in the appropriate height combinations. Plug all lifting holes inside and out with non-shrink grout. Construct inverts in accordance with Drawings.

B. Joints: Follow manufacturer’s instructions for sealing joints between precast sections. Provide two rings of 1 inch diameter butyl rubber sealant. Point joints inside and out with butyl caulk.

C. Frame and Covers:
   1. Set to final grade as shown on the Drawings and as specified. Provide adequate temporary covers to prevent accidental entry until final placement of frame and cover is made.
   2. Use two rings of 1 inch diameter butyl rubber sealant between frame and rubber riser. Provide downward force to frame so as to compress the joint, provide a watertight seal, and prevent future settlement. Point compressed joint with butyl rubber caulk sealant.
   3. Set frames and covers to final grade only after pavement base course has been applied, or after final grading.

D. If utilities penetrate the hard clay and encounter soft trench bottoms, install 12 inches of underdrain sand followed by 1 to 2 feet of Crushed Stone wrapped in non-woven geotextile fabric to stabilize the trench bottom for installation of pipe and structures.

3.03 INSULATION

A. Install as shown on Drawings.

END OF SECTION
SECTION 33 41 16

CMP DETENTION PIPING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This item shall govern the furnishing and installation of Underground Detention Systems for all types, sizes and designations as shown on the plans.

B. Contractor shall furnish all labor, materials, equipment and incidentals necessary to install the CMP System, appurtenances and incidentals in accordance with the Drawings and as specified herein.

C. Related Work specified elsewhere includes:

- Geotextiles………………………………… Section 31 05 19.13
- Earth Moving……………………………… Section 31 20 00
- Erosion and Sedimentation Control……… Section 31 25 00
- Storm Drainage Utilities…………………… Section 33 40 00
- StormFilter Structure…………………… Section 33 49 26

1.02 REFERENCES

A. Applicable provisions of any Division shall govern work in this section.

B. American Association of State Highway and Transportation Officials (AASHTO)

1. AASTHO Design Section 12 – Soil-Corrugated Metal Structure Interaction Systems

2. AASHTO Construction Section 26 – Metal Culverts


4. AASHTO M274 – Standard Specification for Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe

C. American Society for Testing and Materials (ASTM)

1. ASTM A760: Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains

2. ASTM A929: Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
3. ASTM A798: Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications

4. ASTM A998: Standard Practice for Structural Design of Reinforcements for fittings in Factory-Made Corrugated Steel Pipe for Sewers and Other Applications

1.03 SUBMITTALS

A. Shop drawings shall be annotated to indicate all materials to be furnished and installed under this section, and all applicable standards for materials, required tests of materials and design assumptions for structural analysis.

B. Buoyancy calculations and design of anti-flotation measures, as needed.

C. Construction Records: Record depth and location of the following:
   1. Structure locations and elevations; and
   2. Pipe locations and elevations.

Record neatly in a permanently bound notebook and submit at Substantial Completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

PART 2 – MATERIALS

2.01 CMP SYSTEM

A. Aluminized Type II material shall conform to the applicable requirements of AASHTO M274 or ASTM A929. CMP shall be manufactured in accordance with the applicable requirements of AASHTO M36 or ASTM A760.

B. The pipe sizes, gauges and corrugations shall be as shown on the project plans. Joint performance requirements are published in Division II, Section 26.4.2, of the current edition of the AASHTO Bridge Construction Specifications.

C. Soil tight, gravity flow, non-pressure, drainage pipe joints shall conform to AASHTO M36 and ASTM A760. Minimum joint spacing shall be 10 ft.

D. Overlapping of adjacent pipes are not permitted and appropriate banding must be utilized in order to properly secure individual pipes in place.

E. Integral End Sections: Each barrel of the CMP System shall either be connected to a fitting composing a manifold for hydraulic distribution or have an integrated bulkhead to resist loading at the end/start of the barrel, end cap sections shall not be permitted.
F. Material selected shall be flame resistant and capable of retaining 80% of strength when subjected to a temperature of 400 degrees Fahrenheit for one hour.

G. All fittings shall be manufactured prior to arriving on the jobsite to ensure structural integrity. Fitting reinforcement shall be in accordance with ASTM A998 and reinforcing details. Bulkhead design and fabrication does not vary with differing coatings on the steel components.

H. The manufacturer of the CMP System shall be one that has regularly been engaged in the engineering design and production of these systems for at least fifteen years and which has a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the CMP System shall be supplied by the following manufacturer (or approved equal):

Contech Engineered Solutions
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

I. Sampling, testing, and inspection of metal sheets and coils used for manufacturing the CMP System shall be in accordance with the above applicable referenced specifications. All fabrication of the product shall occur within the United States.

2.02 PERFORMANCE STANDARDS

A. The CMP System proposal shall be sized in accordance to the design provided and approved by the Engineer. Any Contractor deviating from the design shown on the plans, to include: material, footprint, etc., shall provide to the Engineer a summary report on stage-storage curves, design calculations, HydroCAD modeling and engineering drawings.

B. The CMP System shall comprise of manhole access with minimum dimensions of 24 inches diameter to provide adequate inspection and maintenance without restrictions and obstructions to entry into interior of the CMP System. Manholes shall be provided to allow full entry into and visual inspection of the complete CMP System, at a minimum as to allow full maintenance of the CMP System. Cleanouts or inspection ports are not acceptable access points for maintenance and inspection nor are any other alternatives which do not allow for full entry into the system.

C. The CMP System shall be designed for a minimum HS-20/HS-25 final live loading conditions. The CMP System shall meet HS-20/HS-25 loading requirements with a minimum of 12-inches of cover to bottom of flexible pavement for pipe spans less than or equal to 96 inches and 18 inches of cover to bottom of flexible pavement for pipe spans greater than 96 inches.

D. The CMP System shall be designed so as the hydraulic grade line will increase evenly throughout whereas transverse movement from one storage compartment to
another shall not be permitted. All storage compartments shall be connected via manifold (or connecting pipe) versus by transporting stormwater through stone.

PART 3 – EXECUTION

3.01 INSTALLATION OF CMP SYSTEM

A. The CMP System installation shall be in accordance with AASHTO Standard Specifications for Highways Bridges, Section 26, Division II or ASTM A798 and in conformance with the project plans and specifications.

B. The CMP System shall be installed in accordance with the manufacturer’s recommendations and related sections of the contract documents. Handling & assembly shall be in accordance with National Corrugated Steel Pipe Association’s (NCSPA) recommendations.

C. For temporary construction vehicle loads, an extra amount of compacted cover may be required over the top of the pipe. The Height-of-Cover shall meet the minimum requirements shown in the table below. The use of heavy construction equipment necessitates greater protection for the pipe than finished grade cover minimums for normal highway traffic.

<table>
<thead>
<tr>
<th>Pipe Span (inches)</th>
<th>Axle Loads (kips)</th>
<th>18 - 50</th>
<th>50 - 75</th>
<th>75 - 110</th>
<th>110 - 150</th>
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<td>3.0</td>
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<td>126 - 144</td>
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<td>3.5</td>
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</tbody>
</table>

D. Minimum cover may vary, depending on local conditions. The contractor must provide the additional cover required to avoid damage to the pipe. Minimum cover is measured from the top of the pipe to the top of the maintained construction roadway surface.

E. Refer to the Contech Corrugated Metal Pipe Detention Design Guide for additional guidance regarding installation, inspection and maintenance.

F. The contractor shall follow Occupational Safety and Health Association (OSHA) guidelines for safe practices in executing the installation process in accordance with the manufacturer/supplier installation recommendations.

G. Backfill material shall be placed in 8 inch loose lifts and compacted to 90% AASHTO T99 standard proctor density.

H. Supplier will conduct an on-site preconstruction meeting with the contractor prior to the scheduled delivery date of the CMP System.
END OF SECTION
SECTION 33 49 26

STORMFILTER STRUCTURE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The Contractor shall furnish and install the StormFilter, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents. The water quality treatment flow shall be as determined and approved by the Engineer.

B. The StormFilter shall consist of an underground precast concrete structure that houses passive, radial flow, siphon-actuated, and rechargeable media filled filtration cartridge(s). The rechargeable media-filled filter cartridges shall incorporate a protective hood over the media cartridge and a siphon-actuated surface self-cleaning mechanism to increase the effective life of the filter media and to reduce the accumulation of material on the cartridge/media interface. Each radial-flow filter cartridge shall operate at a predetermined flow rate through the use of an integrated flow control orifice located within each filter cartridge outlet manifold. The media-filled cartridges shall trap particulates (TSS) and have the capability to adsorb pollutants such as dissolved metals, nutrients and hydrocarbons. The media cartridge filtration system shall consist of no less than 0.12 cubic feet of filter media for each 1-gallon per minute of water quality treatment flow.

C. The StormFilter shall be of a type that has been installed and in use for a minimum of five consecutive years preceding the date of installation of the system. The manufacturer shall have been, during the same consecutive five-year period, engaged in the engineering design and production of systems deployed for the treatment of storm water runoff and which have a history of successful production, acceptable to the Engineer and/or the approving Jurisdiction. The manufacturer of the StormFilter shall be, without exception:

Contech Engineered Solutions
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

D. Related Work specified elsewhere includes:

Geotextiles…………………………………… Section 31 05 19.13
Earth Moving………………………………… Section 31 20 00
Erosion and Sedimentation Control…… Section 31 25 00
Storm Drainage Utilities………………… Section 33 40 00
CMP Detention Piping……………………… Section 33 41 16
1.02 REFERENCES

A. American Society for Testing and Materials (ASTM) Reference Specifications:


2. ASTM C858: Standard Specification of Underground Precast Concrete Utility Structures

3. ASTM C478: Standard Specification for Circular Precast Reinforced Concrete Manhole Sections

4. ASTM C497: Standard Test Methods for Concrete Pipe, Manhole Sections or Tile


6. ASTM A615/A615M: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

7. ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort


B. American Association of State Highway and Transportation Officials (AASHTO) Reference Specifications:

1. AASHTO M199: Standard Specification for Precast Reinforced Concrete Manhole Sections
1.03 SUBMITTALS

A. Shop drawings for the StormFilter structure, filter cartridges and accessory equipment. Drawings shall include principal dimensions, filter placement, location of piping and unit foundation.

B. Manufacturer Installation Instructions.

C. Manufacturer Operation and Maintenance Manual.

D. Buoyancy calculations and design of anti-flotation measures, as needed.

E. Construction Records: Record depth and location of the following:
   1. Structure locations and elevations; and
   2. Pipe locations and elevations.

Record neatly in a permanently bound notebook and submit at Substantial Completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

PART 2 – MATERIALS

2.01 INTERNAL COMPONENTS

A. All internal components including ABS and PVC manifold piping, filter cartridge(s), filter media (as specified on the plans in the StormFilter data block or by the Engineer) shall be provided by Contech Engineered Solutions LLC. This includes sump covers, flow spreaders, energy dissipaters and outlet risers with scum baffles where appropriate.

B. ABS manifold pipe shall meet ASTM F628. PVC manifold pipe shall meet ASTM D1785 and PVC fittings shall meet ASTM D2466.

C. Filter cartridge bottom pan, inner ring, and hood shall be constructed from linear low-density polyethylene (LLDPE) or ABS. Filter cartridge screen shall consist of 1” x ½” welded wire fabric (16-gauge minimum) with a bonded PVC coating. Internal parts shall consist of ABS or PVC material. Siphon-priming float shall be constructed from high-density polyethylene (HDPE). All miscellaneous nuts, bolts, screws, and other fasteners shall be stainless steel or aluminum.

D. An orifice plate shall be supplied with each cartridge to restrict flow rate to a maximum of 22.5 gpm at system design head or as specified on drawings.

E. If a sump cover/overflow, baffle/inlet, sump/outlet, sump/inlet, tower/outlet overflow is provided, they shall be constructed of ABS and sealed to the interior vault walls and floor with a polyurethane construction sealant rated for use below
the waterline, SikaFlex 1a or equal. Contractor to provide sealant material and installation unless completed prior to shipment.

F. Where an Underdrain Design is provided, the size of the underdrain will provide a minimum of 0.067 in\(^2\) of underdrain cross sectional area per 1 gpm of design flow rate. (example: 105 gpm maximum design flow rate will require an underdrain with 7.035 in\(^2\) of cross sectional area, which is equal to one 3” diameter pipe).

G. Filter media shall be provided by Contech or an approved alternate source. Filter media shall consist of the following, as specified in the StormFilter data block:

1. Zeolite Media: Zeolite media shall be made of naturally occurring clinoptilolite, which has a geological structure of potassium-calcium-sodium aluminosilicate. The zeolite media shall have a bulk density ranging from 44 to 48 lb/ft\(^3\), particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #6 sieve, and a cation exchange capacity ranging from 1.0 to 2.2 meq/g.

2. PhosphoSorb: PhosphoSorb media shall be made from Perlite pellets with activated alumina bound to the surface. The PhosphoSorb media pellets shall be granular and have a bulk density from 18 to 25 lb/ft\(^3\). The pellet size should range from that passing through a U.S. Standard ¼ inch sieve and retained on a #8 sieve.

H. Overflow Assembly (Where Provided):

1. Flow spreader shall be constructed of Linear Low-Density Polyethylene (LLDPE). Contractor to provide sealant material and installation unless completed prior to shipment.

2. Energy dissipater shall be constructed of polyolefins. Contractor to provide sealant material and installation unless completed prior to shipment.

3. Outlet riser with scum baffle shall be constructed of HDPE. Outlet riser shall have an outlet stub outside dimension (O.D.) of 12-inch diameter PVC, SDR 26 and a secondary outlet stub O.D. of 8-inch diameter PVC, SDR 26.

2.02 PRECAST CONCRETE STRUCTURE COMPONENTS

A. Precast concrete vault shall be provided according to ASTM C857 and C858. Precast concrete manhole shall be provided according to ASTM C478.

B. Vault and manhole joint sealant shall be Conseal CS-101 or approved equal.

C. If interior concrete baffle walls are provided, baffle walls shall be sealed to the interior vault walls and floor with a polyurethane construction sealant rated for use below the waterline, SikaFlex 1a or equal. Contractor to provide sealant material and installation unless completed prior to shipment.
D. Frames and covers shall be gray cast iron and shall meet AASHTO H-20 loading requirements, and shall be provided according to ASTM A48.

E. Doors shall have hot-dipped galvanized frame and covers. Covers shall have diamond plate finish. Each door to be equipped with a recessed lift handle. Doors shall meet H-20 loading requirements for incidental traffic, at a minimum, or per project specific traffic loading requirements.

F. Steps shall be constructed of copolymer polypropylene conforming to ASTM D4101. Steps shall be driven into preformed or drilled holes once concrete is cured. Steps shall meet the requirements of ASTM C478 and AASHTO M199. The ½” Grade 60 deformed reinforcing bar shall meet ASTM A615, where required.

G. Ladders shall be constructed of aluminum and steel reinforced copolymer polypropylene conforming to ASTM D4101. Ladder shall bolt in place. Ladder shall meet all ASTM C497 load requirements. Ladders provided upon request or where required, and shall not conflict with the operation and accessibility to perform maintenance of the StormFilter.

2.03 CONTRACTOR PROVIDED COMPONENTS (BELOW GROUND INSTALLATION)

A. All contractor-provided components shall meet the requirements of this section, the plans specifications and contract documents. In the case of conflict, the more stringent specification shall apply.

B. Sub-base: Crushed rock base material shall be six-inch minimum layer of ¾-inch minus rock. Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content. Unsuitable material below sub-grade shall be replaced to engineer’s approval.

C. In-situ concrete, if required, shall have an unconfined compressive strength at 28 days of at least 3000 psi, with ¾-inch round rock, a 4-inch slump maximum, and shall be placed within 90 minutes of initial mixing.

D. Silicone Sealant shall be pure RTV silicone conforming to Federal Specification Number TT S001543A or TT S00230C or Engineer approved.

E. Grout shall be non-shrink grout meeting the requirements of Corps of Engineers CRD-C588. Specimens molded, cured and tested in accordance with ASTM C109 shall have minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.

F. For manhole systems, Contractor shall connect to 12-inch or 8-inch diameter outlet riser with Fernco flexible coupling, or approved equal.
G. Rebar used on applicable Catch Basin & Roof Drain systems shall meet ASTM A615M Grade 420 (60 ksi) or as otherwise specified in the general technical specifications.

H. Backfill material shall be ¾-inch minus crushed rock, or approved equal.

2.04 PERFORMANCE STANDARDS

A. Cartridge Operation: Each StormFilter shall contain one or more siphon actuated media filter cartridges that maintain a uniform pressure profile across the face of the filter during operation. At the design flow rate the maximum filter hydraulic loading rate is not to exceed 2.1 gallons per minute per square foot of filter surface area. Stormwater shall enter the filter cartridges through sides and shall flow through the filter media radially from the outer perimeter to the inner cartridge lumen and shall have an average contact time no less than 38 seconds. These media filter cartridges will incorporate a self-cleaning mechanism to remove accumulated material from the cartridge media surface that is activated when the siphon breaks.

B. Documentation of Sediment Removal: The StormFilter system shall have the State of Washington Department of Ecology, General Use Level Designation (GULD) Certification and current approval status from the New Jersey Department of Environmental Protection (NJDEP).

C. Cartridge Sediment Loading: Filter cartridges shall be of a design that has demonstrated a minimum sediment retention capacity of 22 pounds of silty loam per cartridge in laboratory tests without a reduction in hydraulic capacity. Laboratory data shall be corroborated with field observations/data demonstrating equivalent or improved longevity without impacting normal hydraulic performance of the StormFilter. All laboratory and field tests submitted in support of this specification must have undergone peer review by outside entity other than Contech.

PART 3 – EXECUTION

3.01 PRECAST CONCRETE STRUCTURE

A. Set precast structure on crushed rock base material that has been placed in maximum 6-inch lifts, loose thickness, and compacted to at least 95-percent of the maximum dry density as determined by the standard Proctor compaction test, ASTM D698, at moisture content of +/-2% of optimum water content.

B. Structure floor shall slope 1/4-inch maximum across the width and slope downstream 1 inch per 12 feet of length. For manholes “Length” is defined by a line running from the invert of the outlet through the center of the manhole and “width” is the perpendicular to the “length”. Structure top finish grade shall be even with surrounding finish grade surface unless otherwise noted on plans.
C. Inlet and outlet pipes shall be stubbed in and connected to precast concrete structure according to Engineer’s requirements and specifications. All connections to be water tight. If grout is used, Contractor to grout all inlet and outlet pipes flush with or protruding up to 2 inches into interior of structure.

D. When required, ballast shall be placed to the dimensions specified by the engineer and noted on the data block. Ballast shall not encase the inlet and/or outlet piping. Provide 12” clearance from outside diameter of pipes.

3.02 CLEAN UP

A. Remove all excess materials, rocks, roots, or foreign material, leaving the site in a clean, complete condition approved by the engineer. The project site shall be clean and free of dirt and debris and the inlet/outlet chamber(s) and filter chamber(s) shall be free of construction debris and sediment before the allowing runoff to enter and place the system in operation. All filter components shall be free of any foreign materials including concrete and excess sealant.

B. Where applicable, Contractor shall remove the temporary filter fabric around the inlet grate to place the system in operation.

C. Where required, the 4-inch cleanout plug in the overflow weir wall shall remain in place for proper operation of the system.

3.03 FILTER CARTRIDGES

A. Filter cartridges shall be delivered installed in the structure, unless otherwise agreed upon with Contech. Contractor shall take appropriate action to protect the cartridges from sediment and other debris during construction. The method ultimately selected shall be at Contractor’s discretion and Contractor’s risk. Some methods for protecting the cartridges include, but are not limited to:

1. Remove cartridges from the structure and store appropriately. Cartridges shall be reinstalled to operate as specified herein (see below).

2. If structure is equipped with underdrain bypass piping, Contractor may leave cartridges in the vault and allow stormwater entering collection system to bypass filter bay through underdrain bypass piping.

3. Leave cartridges in the structure and plug inlet and outlet pipe to prevent stormwater from entering the vault, and provide means for stormwater to bypass the StormFilter.

B. Filter cartridges shall not be placed in operation until the structure is clean and the project site is clean and stabilized (construction erosion control measures no longer required). The project site includes any surface that contributes storm drainage to the StormFilter. All impermeable surfaces shall be clean and free of dirt and debris. All catch basins, manholes and pipes shall be free of dirt and sediments. Contact
Contech to assist with system activation and/or inspect the system for proper installation once site is clean and stabilized.

C. Contractor to install filter cartridges. Specifications for alternate cartridge installation methods available by contacting Contech directly.

1. Filter Cartridges with ¼-Turn Connector Fittings: Tape shall be cleanly and completely removed from manifold fitting openings. ¼-turn connects shall be glued and inserted into all manifold fittings to be equipped with a filter cartridge. Filter cartridges shall be turned onto the connector until they reach the hard stop on the connector – approximately ¼ revolution, with care to not “over turn” the cartridge, or turn with such force to damage the hard stop mechanism. Plugs shall be inserted without glue in all manifold fittings not equipped with a filter cartridge.

3.04 INSPECTION AND MAINTENANCE

A. Maintenance and Inspection shall be in performed in accordance with Contech’s recommendations for maintenance and inspection.

B. Maintenance and inspection intervals shall be per Contech’s recommendations, or per the approving/local jurisdiction/agency requirements; whichever is more frequent.

C. Surface access for personnel and equipment for inspection and maintenance activities shall be provided.

END OF SECTION