BELMONT SCHOOL ADMINISTRATION BUILDING EXTERIOR RESTORATION

644 Pleasant Street
Belmont, Massachusetts 02478

Project Manual

Review Set, April 5, 2024

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road, Suite 211B
Nahant, Massachusetts 01908
Tel (617) 227-2675

Division	Section Title

PROCUREMENT AND CONTRACTING DOCUMENTS GROUP

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

SPECIFICATIONS GROUP

General Requirements Subgroup

DIVISION 01 - GENERAL REQUIREMENTS

Facility Construction Subgroup

DIVISION 04 – SITE

DIVISION 04 – MASONRY

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

DOCUMENT 00 01 16 - INVITATION TO BID

THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED. Please review the instructions in the bid documents on how to register as an electronic bidder. The bids are to be prepared and submitted at www.biddocsonline.com . Tutorials and instructions on how to complete the electronic bid documents are available online (click on the "Tutorial" tab at the bottom footer).

The Office of the Selectboard of Belmont, Massachusetts, the Awarding Authority invites sealed bids from General Contractors for Exterior Restoration of the School Administration Building, 644 Pleasant Street in Belmont, MA, in accordance with the documents prepared by architects Spencer Preservation Group.

The scope of the work includes:

- Copper and slate roofing and flashing repairs.
- Rebuilding and repointing of brick masonry at existing chimney
- Replacement of existing chimney cap

General Bids will be received until **2:00 PM on May 2, 2024** and opened online, forthwith.

All Bids should be submitted electronically online at **www.biddocsonline.com** and received no later than the date and time specified above.

General bids shall be accompanied by a bid deposit that is not less than five (5%) of the greatest possible bid amount (considering all alternates), and made payable to the **Town of Belmont.**

Bid Forms and Contract Documents will be available for pick-up at **www.biddocsonline.com** (may be viewed electronically and hardcopy requested) or at Nashoba Blue, Inc. at 433 Main Street, Hudson, MA 01749 (978-568-1167).

There is a plan deposit of **$50** per set (maximum of 2 sets) payable to BidDocs Online Inc.

Deposits may be electronically paid or must be a check. This deposit will be refunded for up to two sets for general bidders and for one set for sub-bidders upon return of the sets in good condition within thirty days of receipt of general bids. Otherwise the deposit shall be the property of the Awarding Authority.

Additional sets may be purchased for **$50.**

Bidders requesting Contract Documents to be mailed to them shall include a separate check for **$40.00** per set for UPS Ground (or $65.00 per set for UPS overnight), payable to BidDocs ONLINE, Inc., to cover mail handling costs.

A Pre-Bid Conference will be held at the School Administration Building, 644 Pleasant Street, Belmont on April 23, 2024 at 1:00 PM. While attendance is not mandatory, it is strongly

encouraged, as additional site visits cannot be guaranteed, and important information will be given at the conference.

The Contract Documents may be seen, but not removed at:

Nashoba Blue Inc.
433 Main Street
Hudson, MA 01749
978-568-1167

All bids for this project are subject to applicable public bidding laws of Massachusetts, including G.L. c.30, §39M, as amended.

Attention is directed to the minimum wage rates to be paid as determined by the Commissioner of Labor and Industries and the weekly payroll record submittal requirements under the provisions of Massachusetts General Laws, Chapter 149, Section 26 through 27D inclusive.

All work must meet the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Selection of the contractor will be based upon bidder qualifications, including evidence of past performance in similar projects, and bid price. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder.

The Town of Belmont is an affirmative action/equal opportunity owner/purchaser.

The bidder agrees that its bid shall be good and may not be withdrawn for a period of 45 days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

The Town of Belmont reserves the right to waive any informalities, to accept or reject, in whole or in part any or all bids, or take whatever other action may be deemed to be in the best interest of the Town.

Office of the Selectboard, Town of Belmont
455 Concord Avenue
Belmont, MA 02478

▪ END OF DOCUMENT ▪

DOCUMENT 00 20 00 - INSTRUCTIONS TO BIDDERS

1. Project name and Location:

   Belmont School Administration Building

   Exterior Restoration

   486 Main Street, Acton, MA 01720

2. The Owner is the Town of Belmont, therefore the construction agreement will be written between the successful bidder and the Town.

3. This document contains instructions to bidders for the project named above. This bidding document is not part of the Contract Documents, unless specifically referenced in the Owner/Contractor Agreement.

4. **THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED**. Please review the instructions in the bid documents on how to register as an electronic bidder. The bids are to be prepared and submitted at www.biddocsonline.com . Tutorials and instructions on how to complete the electronic bid documents are available online (click on the "Tutorial" tab at the bottom footer).

5. Late proposals will be rejected immediately following the proposal deadline.

6. Bidder questions shall be directed no later than 5:00 PM, April 29 to:

Name:	Doug Manley
Firm:	Spencer Preservation Group
Address:	41 Valley Road
City, State, ZIP:	Nahant, MA 01908
Tel/ Email:	617.227.2675 ex 2 doug@spencerpreservationgroup.com

7. State law prohibits discrimination. The Town of Belmont is an affirmative action/equal opportunity owner/purchaser.

8. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience to complete the work successfully within the time named. The Owner's decision or judgment on these matters will be final, conclusive, and binding.

9. Each bidder must familiarize himself fully with the conditions relating to the construction of the project and the employment of labor thereon.

10. The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

11. 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 Contract Documents (including all Addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation with respect to his bid.

12. The Contractor shall carry and continuously maintain until completion of the Contract, insurance in such form as shall protect him performing work covered by this Contract, or the Town of Belmont and the School Department and its employees, agents and officials, from all claims and liability for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this Contract. The Contractor covenants and agrees to hold the Town of Belmont and its employees, agents and officials harmless from loss or damage due to claims for personal injury and/or property damage arising from, or in connection with operations under this Contract.

13. All materials and items will be incorporated into the project, and which will become the property of the Owner upon completion of the said project, will be exempt from the Massachusetts Sales Tax. The General Contractor shall obtain form the Owner the Sales Tax Exemption Number, applicable for the project, and shall include said number when ordering materials for the project.

14. A performance bond in an amount equal to 50 percent of the total amount of the bid with a surety company qualified to do business in the Commonwealth of Massachusetts will be required for the faithful performance of the contract as well as a labor and materials bond in an amount equal to 100 percent of the total bid amount

15. The Owner reserves the right to waive any informalities or reject any and all bids, should the Owner deem it to be in the public interest to do so.

The Owner may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, or the Owner may waive such omissions, conditions or irregularities.

16. Commencement of work and time of completion: The selected General Bidder must

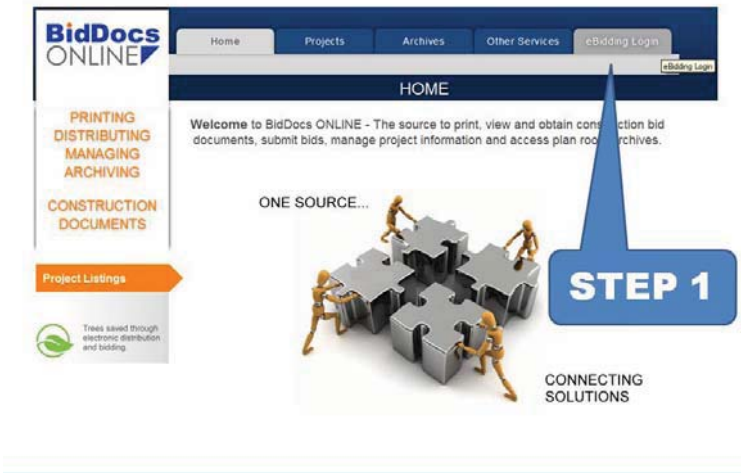
agree to commence and prosecute the Work under this Contract in conformance with the conditions of the Contract Documents and substantially complete no later than August 30, 2024.

END OF DOCUMENT

Tutorial #1
eBidding REGISTRATION INSTRUCTIONS

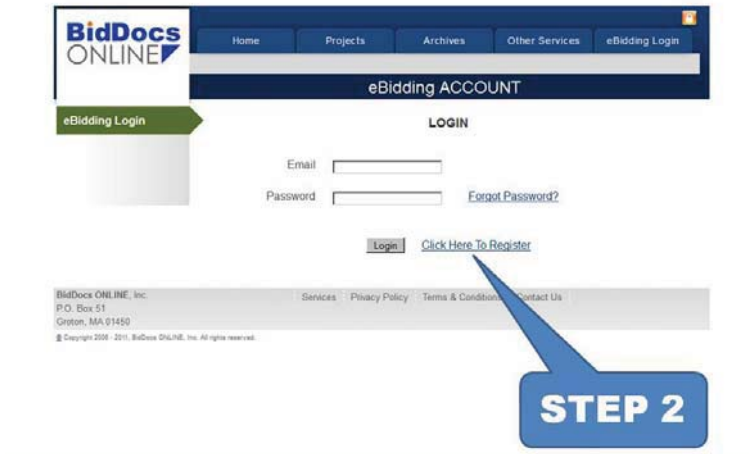
Below are the step by step instructions on how to register to use BidDocs ONLINE eBidding. There is no cost to register. Start by going to

www.biddocsonline.com



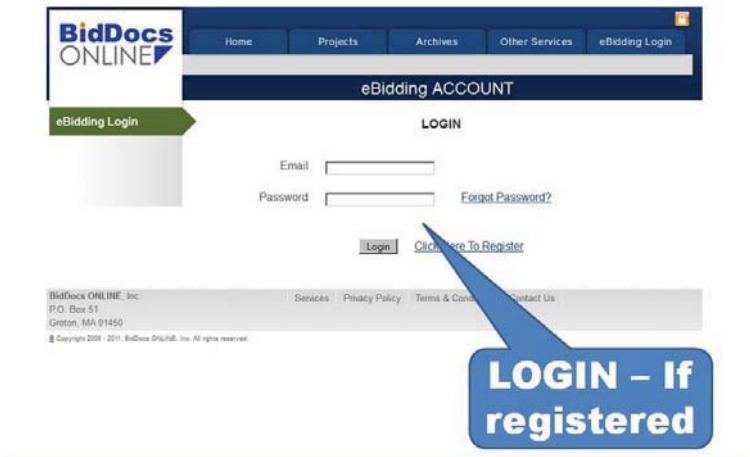
eBidding Registration Instructions 1

STEP 1: Click on the "eBidding Login" tab at the top of the page.



eBidding Registration Instructions 2

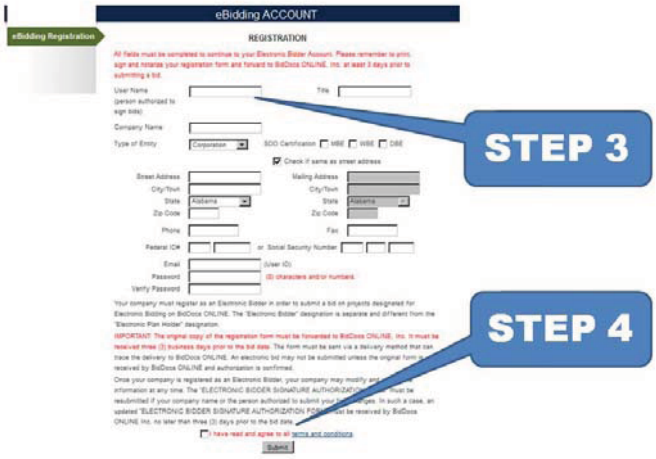
STEP 2: If your company has not previously registered, click on the text "Click Here To Register".



eBidding Registration Instructions 3

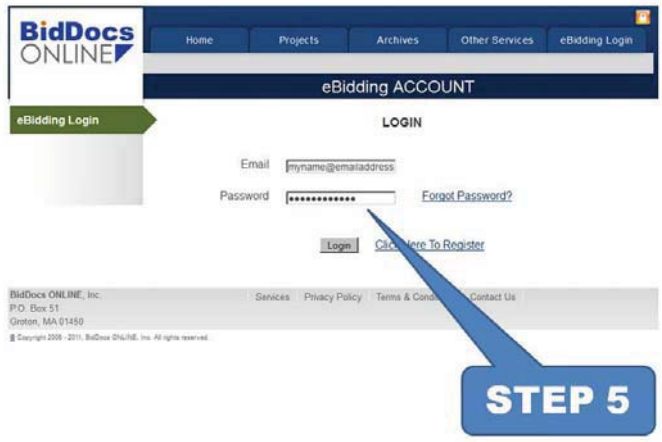
STEP 3: If your company has previously registered, login by entering the registered email address and password and then click the "Login" button.

Note: Your company will have only one registration and must use the same password.

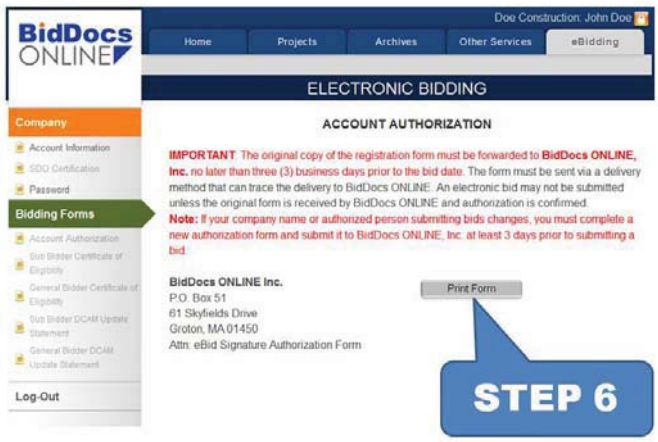


STEP 3: All fields must be completed in the registration form.

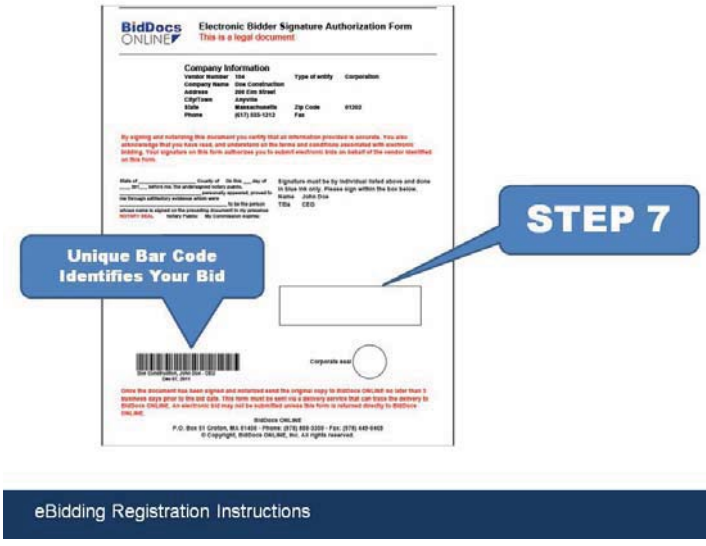
STEP 4: After completing the registration form, you must read and acknowledge the Terms and Conditions. Click the “Submit” button.

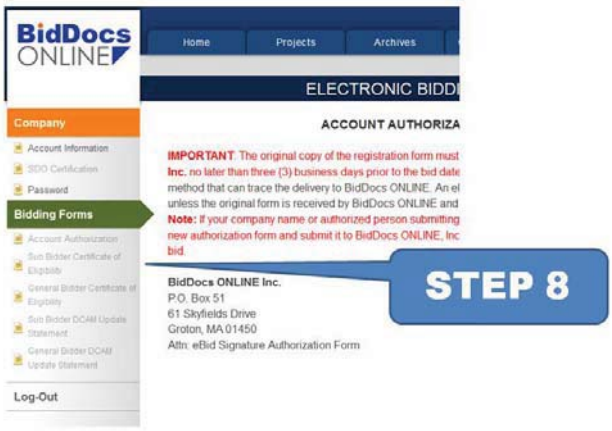


STEP 5: Enter the email and password previously created during the registration process and click “Login”.



STEP 6: After logging in, the account authorization screen will appear. You must click “Print Form” to proceed to Step 7.





STEP 7: Print and notarize the form (sign in blue ink). Return the original "Electronic Bidder Signature Authorization Form" to BidDocs ONLINE Inc.

The mailing address is:
BidDocs ONLINE Inc.
P.O. Box 51
61 Skyfields Drive (for overnight)
Groton, MA 01450

Your company is responsible for ensuring that BidDocs ONLINE receives the signed Electronic Bidder Signature Authorization Form a minimum of three (3) business days prior to the bid date. BidDocs ONLINE will notify you by email that your form has been received and processed. A unique bar code will identify your bid paperwork.

Note: *The registration form will remain "active" until such time that your company requests a change in the person signing the form, the company address or other pertinent company information. Your company is responsible for printing and resubmitting an updated form as required*.

STEP 8: While the Electronic Bidder Signature Authorization Form is being processed, you may commence completing the common forms *(DCAM Eligibility and Sections 1-4 of the DCAM Update Statement)* that are required for MGL c. 149 bids. *(See Tutorial #2 - eBidding Common Forms Instructions)*

Please note that you are responsible for completing the associated forms for each sub-trade and/or general bid as applicable.

Summary: **THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED BY THE AWARDING AUTHORITY.** You must submit your bid electronically at www.biddocsonline.com. At any time during the bidding process, you may print the various bid documents for your company's records. Additional instructions to complete the other bid forms are accessible on the BidDocs ONLINE website (click on the "Tutorial" tab at the bottom footer).

FORM FOR GENERAL BID

TO THE AWARDING AUTHORITY

A. The undersigned proposes to furnish all labor and materials required for _____ for the
PROJECT

in , Massachusetts,

in accordance with the accompanying plans and specifications prepared by

Name of Engineer/Architect

For the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered: _____

C. **The proposed contract price is:**

_____ Dollars $ _____
Bid Amount in Words **Bid Amount in Numbers**

For Alternate	No. _____	Add $ _____	Subtract $ _____
	No. _____	$ _____	$ _____
	No. _____	$ _____	$ _____
	No. _____	$ _____	$ _____
	No. _____	$ _____	$ _____

Each Alternate shall be listed separately

D. The subdivision of the proposed contract price is as follows:

ITEM 1. The work of the general contractor, being all work other than that covered by **ITEM 2**.

TOTAL OF ITEM 1 .....**$** _____

ITEM 2. Sub-bids as follows:

Sub-trade	Name of Filed Sub-bidder	Sub-bid Amount	Bond Required Yes	No

TOTAL OF ITEM 2.....**$** _____

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item I of this bid.

The undersigned agrees that if selected as general contractor, he will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

E. The undersigned agrees that, if he is selected as general contractor, he will within five days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.
The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated there under.

NAME OF BIDDER

SIGNATURE AND TITLE OF PERSON SIGNING BID

Date: _____

BUSINESS ADDRESS

SECTION 00 44 40 – CONTRACTOR'S QUALIFICATIONS

PART 1 - GENERAL

1.1 BID INFORMATION

A. Bidder: _____.

B. Project Identification: BELMONT SCHOOL ADMINISTRATION BUILDING – Exterior Restoration
   1. Project Location: 644 PLEASANT STREET, BELMONT, MA 02478

C. Owner: Town of Belmont

D. Architect: Spencer Preservation Group, 41 Valley Road, Nahant, MA 01908.

1.2 BID FORM SUPPLEMENT

A. This form is required to be attached to the Bid Form.

1.1 1.2 All bidders must demonstrate past successful experience with work on at least three (3) historic buildings (buildings listed on the State Register of Historic Places) with similar conditions in the last five years. For each project, list the property address, contact information for Designer and Owner, approximate value of the work and date of completion of work, and a brief description of the scope of work.

1.2 PREVIOUS PROJECTS

A. Project One:
   1. Project Name and Address: _____
      _____
      _____

   2. Value of Work _____

   3. Date of Completion _____

   4. Architect/Designer (Name and Phone): _____

   5. Owner (Name and Phone): _____
      _____

   6. Brief description: _____
      _____
      _____
      _____
      _____

B. Project Two:

1. Project Name and Address: _____
_____
_____

2. Value of Work _____

3. Date of Completion _____

4. Architect/Designer (Name and Phone): _____

5. Owner (Name and Phone): _____
_____

6. Brief description:_____
_____
_____
_____
_____

C. Project Three:

1. Project Name and Address: _____
_____
_____

2. Value of Work _____

3. Date of Completion _____

4. Architect/Designer (Name and Phone): _____

5. Owner (Name and Phone): _____
_____

6. Brief description:_____
_____
_____
_____
_____

END OF SECTION 00 44 40

DOCUMENT 00 50 00 – FORM OF CONTRACT/GENERAL CONDITIONS (AIA A-107)

Form of Contract shall be AIA Document A107, Abbreviated Standard Form of Agreement between Owner and Contractor for Construction Project of Limited Scope (2017 Edition and AIA Document A107).

Available upon request.

END OF DOCUMENT 00 05 00

SECTION 01 10 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: BELMONT SCHOOL ADMINISTRATION BUILDING – EXTERIOR RESTORATION

1. Project Location: 644 PLEASANT STREET, BELMONT, MA 02478

B. Owner: TOWN OF BELMONT, MA

C. The Work of Project is defined by the Contract Documents and consists of the following:

1. Selective roofing and masonry repairs.

D. Provide secure and weathertight protection of the building during the work.

E. All materials and items which will be incorporated into the project, and which will become the property of the Owner upon completion of the said project, will be exempt from the Massachusetts Sales Tax. The General Contractor shall obtain form the Owner the Sales Tax Exemption Number, applicable for the project, and shall include said number when ordering materials for the project.

F. Dimensions: Work relates to existing conditions. Drawings have been prepared that indicate the scope and range of work. The contractor should verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. DO NOT SCALE DRAWINGS.

G. Existing Conditions: Notify Architect of existing conditions differing from those indicated on the drawings. Do not remove or alter structural components without prior written approval.

H. Installation Requirements, General:

1. Install materials in exact accordance with manufacturer's instructions and approved submittals

2. Install materials in proper relation with adjacent construction and with proper appearance.

3. Restore adjacent finishes damaged during installation.
4. Refer to additional installation requirements and tolerances specified under individual specification sections.

L. Limit use of work as required by coordination with Owner. Keep driveways and entrances to building and entrances to site clear.

M. Maintain existing building in a weathertight condition. Repair damage caused by construction operations. Interior construction dust and debris must be limited to the areas of construction. Prevent exterior construction dust and debris from entering building.

1.3 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations.

B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of the project site beyond indicated areas.

1. Limits: Confine construction operations to the indicated property area.
2. Owner Occupancy: Allow for Owner’s unrestricted use of the building. Coordinate work schedule with the Department’s operating hours to minimize disruption of normal operation of the building.
3. Driveways and Entrances: Keep driveways 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.

1.4 WORK RESTRICTIONS

A. Non-smoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor air intakes.

1.5 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.

1. Division 01: Sections in Division 01 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 01 10 00

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

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

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect 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. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

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. 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. Architect 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 Architect'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. Architect 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.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Contractor.
    e. Name of firm or entity that prepared submittal.
    f. Names of subcontractor, manufacturer, and supplier.
    g. Category and type of submittal.
    h. Submittal purpose and description.
    i. Specification Section number and title.
    j. Specification paragraph number or drawing designation and generic name for each of multiple items.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.
    m. Related physical samples submitted directly.
    n. Indication of full or partial submittal.
    o. Transmittal number, numbered consecutively.

p. Submittal and transmittal distribution record.
q. Other necessary identification.
r. Remarks.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

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 Architect's and Construction Manager'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 Architect's and Construction Manager's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Submit electronic submittals via email as PDF electronic files.

a. Architect, 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.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

    a. PDF electronic file.

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 Architect'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.

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. Architect, through Construction Manager, 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. Architect and Construction Manager will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

        1) 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. Submit product schedule in the following format:

a. PDF electronic file.

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 Architect.

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 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

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

1. APPROVED;
APPROVED AS CORRECTED.

a. Fabrication / Installation may be undertaken. Approval does not authorize changes in the Contract Sum or Contract Time unless stated by Change Order or Construction Change Directive.

2. REVISE AND RESUBMIT
REJECTED

a. Fabrication / Installation MAY NOT be undertaken. In resubmitting, limit corrections to the items marked.

Review and approval are only for conformance with the information given and the design concept of the Project as expressed in the Contract Documents. Review and approval of submittals are not conducted for the purpose of determining the accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for the 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 and approval of the Contractor's submittals shall not relieve the Contractor from any obligation contained in the Contract Documents. The

Architect's review and approval shall not constitute approval of any construction means, methods, techniques, sequences, or safety precautions or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect and Construction Manager will forward each submittal to appropriate party.

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 may not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to Architect and occupants of Project**,** testing agencies, and authorities having jurisdiction.

B. Water Service: Owner will make water available during the construction process for cleaning or mixing purposes.

C. Electric Power Service: Owner will make electrical connections available during the construction process for reasonable use of construction tools and light equipment.

1.3 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

A. 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.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 8 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top rails. Provide green nylon scrim applied to fence.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 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 by progress of the Work.

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

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service.

B. Sanitary Facilities: provide and maintain portable facilities in a location agreed upon by the Owner. Remove facilities at construction completion.

C. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

F. Telephone Service: Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 FIELD OFFICE MAINTENANCE

A. General: Comply with the following:

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site and construction areas free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

D. Project Identification and Temporary Signs: Provide Project identification and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible at all times.
3. The building is an historic property. Obtain written approval from Owner prior to installing any signs that are not solely directional.
    a. Do not mount any signs of any kind directly on the building.

E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements. Obtain Owner’s approval of location prior to placement.

3.4 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.

B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

C. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.

2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.

2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 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.

1. Maintain operation of temporary enclosures, heating, cooling, and similar facilities to achieve indicated results and to avoid possibility of damage.

C. Termination and Removal: Remove each temporary facility when need for its service has ended or no later than Substantial Completion.

1. Materials and facilities that constitute temporary facilities are 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 specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 – INSURANCE REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

This Section includes requirements for insurance.

1.2 CONTRACTOR'S INSURANCE

A. Contractor shall protect the job site and the Work, and shall repair or replace, at its own cost and expense, any loss, claim or damage to the building or the Owner, occurring during the term of this Contract or prior to the final delivery and acceptance by the owner of the Work, by reason of any act, omission, negligence, or for any reason caused either directly or indirectly by Contractor, its agents or employees, in the performance or default of this contract, except that the Owner shall also maintain property insurance upon all buildings for all permanent construction and installations thereof. Contractor shall be wholly responsible for the carrying out of this Work, subject to approval and final acceptance by the Owner. Any payment made to the Contractor shall not relieve Contractor from the responsibility for the carrying out of said Work.

B. Contractor shall furnish and maintain during the life of this Contract such public liability and property damage insurance with a waiver of subrogation in favor of the Owner as shall protect it and any subcontractor or person performing Work covered by this Contract, from claims for damages for personal injury, including accidental death, except by persons protected by workers compensation statute, and from claims for property damage, which might arise from operations under this Contract. The minimum amounts of such insurance shall be as follows (said enumeration shall in no way limit Contractor's liability); and Contractor may procure at its cost such additional amounts that in its judgment, deems desirable:

The contractor shall carry Public Liability Insurance with an insurance company satisfactory to the Town of Belmont so as to save the Town harmless from any and all claims for damages arising out of bodily injury or destruction of property caused by accident resulting from the use of implements, equipment, or labor used in the performance of the contract or from any neglect, default, or omission or want of proper care, or misconduct on the part of the contractor or for anyone in his employ during the execution of the work. Minimum coverage shall be as follows:

1) *<u>General Liability</u> of at least $1,000,000 Occurrence and $3,000,000 General Aggregate. The Municipality should be named as an "Additional Insured".*
2) *<u>Automobile Liability</u> (applicable for any contractor who has an automobile operating exposure) of at least $1,000,000 Bodily Injury and Property Damage per accident. The Municipality should be named as an "Additional Insured".*
3) *<u>Workers' Compensation Insurance</u> as required by law. Include Employers Liability Part B*

4) *Umbrella Liability of at least $2,000,000/ occurrence, $2,000,000/aggregate. The Municipality should be named as an Additional Insured'*

Contractor shall take out and maintain during the life of this Contract, workers compensation insurance for all persons employed under this Contract.

C. Prior to commence of any Work, Contractor shall furnish the Owner with; (1) workers compensation certificates (showing that they have coverage for the classification of work; (2) Certificates of Insurance naming the Owner and its officers, director and agents at the Town of Belmont as an additional insureds and agreeing to notify the Owner before termination thereof; and (3) Insurance Declaration pages with policies attached covering all of the insurance heretofore mentioned. The Owner at its option, may terminate this Contract without cost if Contractor fails to deliver properly executed insurance certificates prior to commencement of the Work.

1.3 OWNER'S LIABILITY INSURANCE

A. The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

PROJECT MANAGEMENT PROTECTIVE LIABILTY INSURANCE

A. Optionally, the Owner may require the Contractor to purchase and maintain Project Management Protective Liability insurance from the Contractor's usual sources as primary coverage for the Owner's, Contractor's and Architects vicarious liability for construction operations under the Contract. Unless otherwise required by the Contract Documents, the Owner shall reimburse the Contractor by increasing the Contract Sum to pay the cost of purchasing and maintaining such optional insurance coverage, and the Contractor shall not be responsible for purchasing any other liability insurance on behalf of the Owner. The minimum limits of liability purchased with such coverage shall be equal to the aggregate of the limits required for Contractor's Liability insurance.

B. The extend of damages are covered by Project Management Protective Liability insurance, the Owner, Contractor, and Architect waive all rights against each other for damages, except such rights as they may have to the proceeds of such insurance. The policy shall provide for such waivers of subrogation by endorsement or otherwise.

C. The Owner shall not require the Contractor to include the Owner, Architect or other persons or entities as additional insureds on the Contractor's Liability insurance.

PROPERTY INSURANCE

A. The Owner shall maintain existing property insurance policies during the term of the Contract

B. The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will no be canceled or allowed to expire, and that its limits will now be reduced, until at least 30 days prior written notice has been given to the Contractor

END OF SECTION 01 60 00

SECTION 02 95 00 – LAWN RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the contract, including General and Supplementary Conditions, division 1 Specification Sections and relevant sections of these Specifications, apply to the work specified in this section.

1.2 WORK TO BE PERFORMED

A. The work of this Section consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to perform all lawn installation and fine grading work and related items as indicated on the Contract Documents and/or as specified in this Section and includes, but is not necessarily limited to, the following:

1. Restoration of the Lawn areas disturbed by the work of this project at the completion of the project.

2. Maintenance and protection of Lawn areas.

1.4 SUBMITTALS

A. At least 30 days prior to intended use, the Contractor shall provide the following samples and submittals for approval in conformance with the requirements of Division 1 Section 01300, SUBMITTALS. Do not order materials until Owner’s Representative's approval of samples, certifications or test results has been obtained. Delivered materials shall closely match the approved samples. Acceptance 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. Fertilizer:

a. Submit product literature of seeding fertilizer and certificates showing composition and analysis.
b. Submit the purchasing receipt showing the total quantity purchased for the project prior to installation.

2. Seed: Submit a manufacturer's Certificate of Compliance to the Specifications with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed, and also the net weight and date of shipment. No seed may be sown until the Contractor has submitted the certificates.

3. Acceptable substitution: Sod: Submit a manufacturer's Certificate of Compliance to the Specifications with each shipment of sod. These certificates shall include the guaranteed percentages of purity and weed content of the sod. No sod may be shipped until the Contractor has submitted the certificates and approval has been given.

4. Hydroseeding: Prior to the start of hydroseeding, submit a certified statement for approval as to the number of pounds of materials to be used per 100 gallons of water.

5. Wood Cellulose Fiber Mulch: Submit 4 copies of manufacturer's literature and one material sample.

6. Limestone: Submit supplier's certification that the limestone being supplied conforms to these Specifications.

7. All additives needed to amend a specific soil in order to meet these specifications.

B. Maintenance Instructions: At the time of Acceptance, the Contractor shall submit complete maintenance instructions for lawn care for the Owner's use. The instructions shall be reviewed for approval by the Owner's Representative as a pre-condition for Acceptance.

1.5 REFERENCES

A. Not Applicable.

1.6 EXAMINATION OF CONDITIONS

A. All areas to be improved shall be inspected by the Contractor before starting work and any defects such as incorrect grading, or drainage problems shall be reported to the Owner's Representative prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be improved, and he shall assume full responsibility for the work of this Division 2 Section 02 95 00, LAWN RESTORATION.

B. The Contractor shall be solely responsible for judging the full extent of work requirements involved.

1.7 QUALITY ASSURANCE

A. Qualification of Landscape Contractor: The work of this Division 2 Section, LAWN RESTORATION, shall be performed by a landscape contracting firm which has successfully installed work of a similar quality, schedule requirement, and construction detailing with a minimum of five years experience.

B. Qualification of Foreman or Crew Leader: All work of seeding shall be supervised by a foreman or crew leader who is a certified landscape professional or a certified horticulturist.

PART 2 - PRODUCTS

2.1 PLANTING SOIL MIX

A. Provide submittal sample of proposed planting soil.

2.2 SEED

A. Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall the weed seed content exceed 0.25% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificates of Compliance. Seed that has become wet, moldy or otherwise damaged shall not be acceptable. Chewings fescue, hard fescue, tall fescue and rygrass shall contain *Acromonium* endophytes. Seed containing endophyte must be kept cool and dry at all times; do not stockpile in the sun.

1. Lawn Seed Mix (includes overseeding any existing lawn areas) shall be manufactured by Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA, phone: 814-336-2404, fax: 814-336-5191 or approved equal.

a. Seed Mix Composition – Lawn

Common Name	% by Weight	Germination (min.)	Purity (min.)
Creeping Red Fescue	30%	85%	95%
Kentucky Bluegrass	60%	85%	90%
Perennial Rye	10%	90%	90%

b. Bluegrass and ryegrass varieties shall be within the top 50 percent and 25 percent respectively, of varieties tested in National Turfgrass Evaluation Program, or currently recommended as low maintenance varieties by University of Massachusetts or the University of Rhode Island.

c. Seeding rate for the Lawn Mix shall be 6 pounds per 1,000 square feet.

B. Seed may be mixed by an approved method on the site or may be mixed by a dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers that shall bear the dealer's guaranteed analysis. If seed is mixed by a dealer then the Contractor shall furnish the Owner’s Representative the dealer's guaranteed statement of the composition of the mixture.

C. Acceptable Substitution: Sod shall be nursery grown sod grown from the following seed mixtures and in accordance with percentages as specified:

Proportion of Seed

Botanical Name	Common Name	by Weight
Poa pratensis	Kentucky Bluegrass (At least three improved varieties, such as Glade, 1757, Challenger, P 104, or Touchdown	90% min.
Festuca rubra	Fine Fescue (To consist of "Banner," "Jamestown II," "Pennlawn," or other approved variety)	10% min.

B. The sod shall be as grown by Tuckahoe Turf Farms, Inc., Slocum, Rhode Island, (800)-556-6985, or by Kingston Turf Farms, Inc. Kingston, Rhode Island, (401)-789-0630, or Gold Star Sod Farms, Inc., Canterbury, New Hampshire (800)-648-8873 or other approved source.

C. Sod shall be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be five per cent. Broken pads and torn or uneven ends will not be acceptable. Sod shall be at least one year old from time of original seeding.

D. Sod shall be furnished and installed in rectangular sod strips measuring 12 inches or 16 inches in width and from four feet to six feet in length, stored in rolls with the grass top side inverted so that the topsoil is to the exterior.

E. Sod shall be harvested, delivered and installed within a period of 24 hours. Soil on sod pads shall be kept moist at all times.

F. Stakes: Stakes for pegging the sod shall be sound hardwood approximately one inch by two inches (1" x 2") and of sufficient length to penetrate the mat, the seed bed and to a minimum depth of two inches (2") of subsoil. Stakes shall be free from insects and fungi and capable of remaining in the ground at least two years.

2.4 FERTILIZERS

A. Fertilizer shall be a commercial product complying with the State and United States fertilizer laws. Deliver to the site in the original unopened containers that shall bear the manufacturer's certificate of compliance covering analysis. Fertilizer shall contain not less than the percentages of weight of ingredients as recommended by the soil analysis

2.5 LIMESTONE

A. Ground limestone for adjustment of planting soil mix pH shall contain not less than 85 percent of total carbonates and shall be ground to such fineness that 40 percent will pass

through 100 mesh sieve and 95 percent will pass through a 20 mesh sieve. Contractor shall be aware of loam borrow pH and the amount of lime needed to adjust pH to specification in accordance with testing lab recommendations.

2.6 WOOD CELLULOSE FIBER MULCH

A. Mulch to cover hydroseeded areas shall be fiber processed from whole wood chips and clean recycled newsprint in a 1:1 proportion manufactured specifically for standard hydraulic mulching equipment. Fiber shall not be produced from recycled material such as sawdust, paper, or cardboard.

B. Moisture content shall not exceed 10 percent, plus or minus 3 percent as defined by the pulp and paper industry standards. Fiber shall have a water holding capacity of not less than 900 grams water per 100 grams fiber.

C. The mulch shall be of such character that the fiber will be dispersed into a uniform slurry when mixed with water. It shall be nontoxic to plant life or animal life.

D. The mulch shall contain a non-petroleum based organic tackifier and a green dye to allow for easy visual metering during application but shall be non-injurious to plant growth.

2.7 HERBICIDES, CHEMICALS AND INSECTICIDES

A. Provide chemicals and insecticides as needed for fungus or pest control. All chemicals and insecticides shall be approved by the Massachusetts Department of Food and Agriculture for the intended uses and application rates.

B. Provide post emergent crab grass control throughout the maintenance period to ensure a germinated and mown lawn free of crab grass.

2.8 WATER

A. The Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. If possible, the Owner shall furnish the Contractor upon request with an adequate source and supply of water at no charge. However, if the Owner's water supply is not available or not functioning, the Contractor shall be responsible to furnish adequate supplies at his own cost. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

PART 3 - EXECUTION

3.1 FILLING AND COMPACTION

A. Provide filling and compaction of planting soil mix

3.2 FINE GRADING

A. Provide Fine grading of planting soil mix.

3.3 SEEDING

A. Contractor shall obtain Owner's Representative's written approval of fine grading and bed preparation before doing any seeding.

B. Limit of grading and earthwork shall be limit of seeding unless otherwise indicated on the Contract Documents. All lawn areas disturbed outside the limit of seeding shall be prepared and seeded as specified herein at no additional cost.

C. The season for seeding shall be from April 1 to June 1 and from August 15 to September 30. The actual planting of seed shall be done, however, only during periods within this season which are normal for such work as determined by weather conditions and by accepted practice in this locality. To prevent loss of soil via water and wind erosion and to prevent the flow of sediment, fertilizer, and pesticides onto roadways, sidewalks, and into catch basins, seed loam areas within 5 Days of spreading the planting soil mix.

D. Seed only when the bed is in a friable condition, not muddy or hard.

E. Seeding of lawn shall be by Hydroseeding Method specified as follows:

1. Prior to the start of work, furnish a certified statement as to the number of pounds of materials to be used per 100 gallons of water. This statement shall also specify the number of square feet of hydroseeding that can be covered with the quantity of solution in the hydroseeder.

2. Hydroseed with wood cellulose fiber mulch at a rate of 46 pounds per 1,000 square feet or 2000 pounds per acre.

3. For the hydroseeding process, a mobile tank with a capacity of at least 500 gallons shall be filled with water and the mixture noted above in the specified proportions. The resulting slurry shall be thoroughly mixed by means of positive agitation in the tank. Apply the slurry by a centrifugal pump using the hose application techniques from the mobile tank. Only hose application shall be permitted. At no time shall the mobile tank or tank truck be allowed onto the prepared hydroseed beds. The hose shall be equipped with a nozzle of a proper design to ensure even distribution of the hydroseeding slurry over the area to be hydroseeded and shall be operated by a person thoroughly familiar with this type of seeding operation.

4. Contractor shall obtain Owner's Representative's written approval of fine grading and bed preparation before doing any hydroseeding.

5. Limit of grading and earthwork shall be limit of hydroseeding unless otherwise indicated on the Contract Documents. All lawn areas disturbed outside the limit of hydroseeding shall be hydroseeded.

6. Seed only when the bed is in a friable condition, not muddy or hard. Construction methods shall conform to hydraulic method requirements specified in the Standard Specification.

7. Hydroseeding shall be a two-step process.

   a. Step one shall consist of spreading 100 percent of the required seed uniformly over the prepared bed so that the seed comes into direct contact with the soil. To mark the progress of the hydroseeding operation the Contractor may add 10 percent of the wood cellulose fiber mulch to the slurry.

   b. Step two shall consist of a separate application of wood cellulose fiber mulch immediately following the first step of hydroseeding noted above. Apply the wood cellulose fiber mulch at a rate of 2,000 pounds per acre.

3.4 Acceptable Substitute: SODDING

A. Immediately prior to sodding operations, the loam bed shall be lightly scratched with a fine toothed harrow or hand rake to provide a slightly roughened surface to accept the sodding application.

B. The soil on which the sod is laid shall be reasonably moist and shall be watered, if necessary. The sod shall be laid smoothly, edge to edge, and where continuous or solid sodding is called for on the plans sod shall be laid with the longest dimension parallel to the contours. Sodding shall start at the base of slopes and progress upward in continuous parallel rows. Vertical joints between sods shall be staggered. Immediately after laying, sod shall be pressed firmly into contact with the sod bed by tamping, rolling, or by other approved methods so as to eliminate all air pockets, provide true and even surfaces, insure knitting and protect all exposed sod edges. Do not displace or deform the sod surface during tamping or rolling.

C. In all swales, and on all slopes steeper than one on three and elsewhere as specified or as directed by the Architect, sods shall be held in place by stakes. Pegging shall be done immediately after tamping. At least one stake shall be driven through each sod to be pegged and the stakes shall be not more than two feet apart. Stakes shall have their flat sides against the slope and be driven flush.

D. The season for sod work shall be from April 1 to June 1 and from August 15 to October 15. The actual lawn construction work shall be done, however, only during periods within this season, which are normal for such work as determined by weather conditions and by accepted practice in this locality. At his/her own option, and on his/her own responsibility, the Contractor may proceed under unseasonable conditions without additional compensation, but subject to Architect's approval of time and methods.

3.4 MAINTENANCE

A. Maintenance shall begin immediately after any area is seeded and shall until Final Acceptance, whichever is longer, following the completion of all lawn construction work,

and until final acceptance of the project.

B. Maintenance shall include reseeding, mowing, watering, weeding, fertilizing a minimum of two times in addition to the fertilizer incorporated by harrowing into the spread loam, and resetting and straightening of protective barriers. Lawn work maintenance shall also include chemical treatments as required for fungus and/or pest control.

C. During the maintenance period, any decline in the condition of seeded areas shall require immediate action to identify potential problems and to undertake corrective measures.

D. Watering shall be done in a manner that will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment.

1. The Contractor shall provide all labor and arrange for all watering necessary to establish an acceptable lawn. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary to maintain moist soil to a depth of at least 2 inches for seeded areas. At no time shall a tank truck be allowed on the seeded beds.

2. Watering shall be done in a manner that will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient watering equipment to apply water to the required soil depths each 8-hour period.

E. After the grass in seeded areas has germinated, reseed all areas and parts of areas that fail to show a uniform stand of grass. Reseed such areas and parts of areas repeatedly until all areas are covered with a satisfactory growth of grass with no less than 20 grass shoots per square inch and 2880 grass shoots per square foot. Reseeding together with necessary grading, fertilizing, and trimming shall be done at the Contractor's expense.

3.05 Acceptable Substitute: SOD MAINTENANCE

A. Maintenance shall begin immediately after any area is sodded and shall continue for 90 day active growing period for sodded areas or until Final Acceptance, whichever is longer following the completion of all lawn construction work, and until final acceptance of the project. In the event that sodding operations are completed too late in the Fall for adequate growth of grass, then maintenance shall continue into the following Spring for the minimum 90 Day period.

B. Maintenance shall include resodding, mowing, watering, weeding, fertilizing a minimum of two times in addition to the fertilizer incorporated by harrowing into the spread loam, and resetting and straightening of protective barriers. Lawn work maintenance shall also include chemical treatments as required for fungus and/or pest control.

C. During the maintenance period, any decline in the condition of sodded areas shall require immediate action to identify potential problems and to undertake corrective measures.

D. Watering shall be done in a manner that will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment.

1. The Contractor shall provide all labor and arrange for all watering necessary to establish an acceptable lawn. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary to maintain moist soil to a depth of at least 2 inches for sodded areas. At no time shall a tank truck be allowed on the sodded beds.

2. Watering shall be done in a manner that will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient watering equipment to apply water to the required soil depths each 8-hour period.

E. Protection

1. Lawn areas shall be protected by a 3-foot high barrier constructed of 2 inch by 2 inch hardwood stakes or iron pipes set 18 inches in the ground at 10 foot intervals and connected by No. 10 wire. Flags of white cloth shall be secured to the wire at center points between stakes.

2. Barriers must be raised immediately after lawn construction and shall be maintained until acceptance.

F. Mowing and Edging:

1. The Contractor shall keep lawn areas mowed until acceptance of the contract by cutting to a height of 3 inches when growth reaches 5 inches or as directed by the Owner’s Representative.

2. At each mowing, all edges of walks, drives, plant beds and other border conditions shall be edge trimmed by hand or machine to produce straight and uniform edge conditions.

3. Remove and discard from paved areas only clippings and debris generated by each mowing and edging operation legally off-site. Owner’s Representative, if practical and aesthetic, may allow sweeping (not blowing) clippings back into grass. Mowers shall be equipped with mulching blades. Do not remove from grass areas any clippings that have been generated by mowing operations. Do not mow grass when wet.

G. Fertilizing: A second application of fertilizer shall be applied to seeded areas at the time of the first mowing. This second application shall be applied at a rate that ensures that one-half pound of nitrogen is applied per 1,000 square feet. Phosphorus and potassium shall be applied proportionally in accordance with the recommendations of the soil tests and the quantities previously integrated into the soil during the first application. A third application of nitrogen fertilizer shall be applied to seeded areas approximately two

months after the second application and shall be paid for under this Division 2 Section 02 92 50, LAWN RESTORATION. This third application shall correspond to the following application rates dependent upon the month of application.

1. May 1-15: Apply 1.0 pound of nitrogen per 1,000 square feet.

2. June 15-30: Apply 1.0 pound of nitrogen per 1,000 square feet.

3. August 15 through September 15: Apply 1.0 pound of nitrogen per 1,000 square feet.

4. November 1-15: Apply 1.5 pounds of nitrogen per 1,000 square feet.

* Nitrogen fertilizer shall be composed of 50 percent slowly soluble or slow release nitrogen fertilizer. *

3.5 APPLYING LIMESTONE

A. The Contractor shall return to the site at the beginning of the next seeding season and spread limestone across all lawn areas installed under this Contract.

3.6 ACCEPTANCE

A. Following the minimum required maintenance periods for lawn construction, the Contractor shall request the Owner's Representative in writing for a formal inspection of the completed work. Request for inspection shall be received by the Owner's Representative at least 10 Days before anticipated date of inspection.

B. Acceptance Requirements

1. At the end of the maintenance period, seeded areas shall have a close stand of grass as defined above with no weeds present and no bare spots greater than 3 inches in diameter over greater than 5 percent of the overall seeded area. At least 90 percent of the grass established shall be permanent grass species. If seeded areas are deficient, the Contractor's responsibility for maintenance of all seeded areas shall be extended until deficiencies are corrected. Seeded areas to be corrected shall be prepared and reseeded in accordance with the requirements of this Division 2 Section 02 92 50, LAWN RESTORATION.

C. Owner's Representative's inspection shall determine whether maintenance shall continue in any part.

3.7 CLEAN UP

A. Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition, as directed by the Owner's Representative, at no cost to the Owner

▪ END OF SECTION ▪

SECTION 04 01 00 – MASONRY RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes maintenance of unit masonry consisting of brick clay and brownstone masonry restoration and cleaning as follows:

1. Selectively dismantling and rebuilding of chimney
2. Cutting and Repointing of mortar joints
3. Replacement chimney cap.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

C. Preconstruction test reports.

1.3 QUALITY ASSURANCE

A. Restoration Specialist Qualifications: Engage an experienced masonry restoration and cleaning firm to perform work of this Section. Firm shall have completed work on three projects within the last five years on projects listed on the State or National Register of Historic Places similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for masonry restoration work.
   1. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that clay masonry restoration and cleaning work is in progress.
   2. Restoration Worker Qualifications: Persons who are experienced in restoration work of types they will be performing.

B. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.

   1. Masonry Repair: Prepare sample areas for each type of masonry material indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than 2 adjacent whole units or approximately 48 inches (1200 mm) in least dimension. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

a. Replacement:

1) Four brick units replaced.

2. Repointing: For each mason performing work, rake out joints in 2 separate areas , each approximately 36 inches (900 mm) high by 48 inches (1200 mm) wide for each type of repointing required and repoint one of the areas.
3. Cleaning: Clean an area approximately 25 sq. ft. (2.3 sq. m) for each type of masonry and surface condition.

C. Preinstallation Conference: Conduct conference at Project site.

1.4 QUALITY CONTROL

A. Comply with all referenced standards and manufacturer's recommendations for the products employed.

B. During periods of cold or questionable weather, keep a log of work including air temperature and weather conditions, work started and completed per day, and tests taken. No work shall be done when the ambient temperature of the structure or the air is less than 45 degrees F.

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

A. Face Brick: Provide face brick, including specially molded, ground, cut, or sawed shapes where required to complete masonry restoration work.

1. Provide units with physical properties, colors, color variation within units, surface texture, size, and shape to match existing brickwork.

a. Physical Properties per ASTM C 67:

1) Compressive Strength: 2500/individual brick.
2) 24-Hour Cold-Water Submersion Absorption: 8%.
3) 5-Hour Boil Absorption: 17%.
4) Saturation Coefficient: .78%.

b. For existing brickwork that exhibits a range of colors or color variation within units, provide brick that proportionally matches that range and variation rather than brick that matches an individual color within that range.

2. Special Shapes:
a. Provide specially ground units, shaped to match patterns, for arches and where indicated.
b. Mechanical chopping or breaking brick, or bonding pieces of brick together by adhesive, are not acceptable procedures for fabricating special shapes.

B. Building Brick: Provide building brick complying with ASTM C 62, Grade SW where in contact with earth, Grade SW, MW, or NW for concealed backup; and of same vertical dimension as face brick, for masonry work concealed from view.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Mortar Sand: ASTM C 144 unless otherwise indicated.

1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
2. For pointing mortar, provide sand with rounded edges.
3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

D. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.

E. Water: Potable.

2.3 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.

C. Do not use admixtures in mortar unless otherwise indicated.

D. Mortar Proportions: Mix mortar materials in the following proportions:

1. Pointing Mortar for Brick: 1 part portland cement, 1 parts lime, and 6 parts sand.

a. Add mortar pigments to produce mortar colors required.

2. Rebuilding (Setting) Mortar: Same as pointing mortar except mortar pigments are not required.

2.4 MORTAR WASHDOWN CLEANER:

A. Vanatrol as manufactured by ProSoCo, Inc. of Lawrence, KS.

PART 3 - EXECUTION

3.1 BRICK REMOVAL AND REPLACEMENT

A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated or are to be reused. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole bricks as possible.

1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.

E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

F. Replace removed damaged brick with other removed brick in good quality, where possible, or with new brick matching existing brick, including size. Do not use broken units unless they can be cut to usable size.

G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.

1. Maintain joint width for replacement units to match existing joints.
2. Use setting buttons or shims to set units accurately spaced with uniform joints.

H. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. (30 g/194 sq. cm per min.). Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
2. Rake out mortar used for laying brick before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and at same time as repointing of surrounding area.
3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

3.2 REPOINTING MASONRY

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.

B. Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of 2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, unweathered mortar.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.

C. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.

D. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.

4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.

    a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

E. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.3 CLEANING TO REMOVE ORGANIC GROWTH

A. Follow manufacturer's instructions:
1. Working from bottom to top, apply generously to dry surface until surface is thoroughly wet.
2. Leave on the surface for 2-3 minutes. If needed, apply more to keep the surface wet.
3. Mist treated surfaces with water and gently scrub with a non-metallic, short-fibered scrub brush to loosen biological soiling.
4. Working from bottom to top, rinse thoroughly with clean water. Pressure rinsing is highly effective at removing all product and biological soiling from surfaces. Reduce rinsing pressure as needed for fragile or deteriorated stone.

END OF SECTION 04 01 20

SECTION 04 72 00 – CAST STONE FABRICATION

PART 1- GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division1 Specification Sections, apply to this Section.

1.02 WORK INCLUDED

A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the cast stone work as shown on the drawings and specified herein, including but not necessarily limited to the following:

1. Replacement cast stone chimney cap.

1.03 RELATED WORK

A. MASONRY RESTORATION - SECTION 04 01 20

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm with a minimum of five (5) years experience in manufacturing cast stone units similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to manufacture required units in accordance with the project schedule.

B. Source Limitations for Cast Stone: Obtain cast stone units through one source from a single manufacturer.

C. Codes and Standards: Comply with the following codes, specifications and standards, except as otherwise indicated. **If a conflict exists between the following codes, specifications and standards, the most stringent requirement shall apply. Most recent edition of standard shall apply unless otherwise noted:**

1. Cast Stone Institute Technical Manual
2. ASTM C 1364 – Standard Specification for Architectural Cast Stone.
3. ACI 318 – Building Code Requirements for Reinforced Concrete
4. ASTM C 150 – Standard Specification for Portland Cement

5. ASTM A 955 / A 955M – Specification for Deformed and Plain Stainless Steel Bars for Concrete Reinforcement

6. ASTM C 33 – Standard Specifications for Concrete Aggregates

7. ASTM C 979 – Standard Specification for Pigments for Integrally Colored Concrete

8. ASTM C 1194 – Compressive strength, 6,500 psi minimum for products at 28 days

9. ASTM C 1195 or ASTM C 642 – Absorption, 6% maximum for products at 28 days

10. ASTM C 173 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Volume Method

11. ASTM C 231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

12. ASTM C 260 – Standard Specification for Air Entrained Admixtures for Concrete

13. ASTM C 426 – Standard Test Method for Linear Shrinkage of Concrete Masonry Units

14. ASTM C 494/C 494M – Standard Specification for Chemical Admixtures for Concrete.

15. ASTM C 666 – Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

16. ACI Monograph #8 “Precast Handling and Erection”

17. CRSI 59 “Recommended Practice for Placing Reinforced Bars.”

18. PCI Manual MNL 117, Manual for quality Control for Plants and Production of Architectural Precast Concrete”

19. Massachusetts State Building Code, Current Edition

1.05 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for all cast stone units. Include dimensions, details of anchorages and reinforcement, if any; and indication of finished faces.

1. The shop drawings shall show the setting mark of each unit of cast stone and its location on the structure. The cast stone shall bear the same corresponding setting mark on an unexposed surface.

2. Shop drawings shall show exact profiles for each cast stone unit.

3. Include building elevations showing layout of units and locations of joints and anchors.

B. Samples:

1. Submit one (1) lbs. samples of brown fine aggregate and brown course aggregate for approval prior to starting fabrication.

2. Submit four 6" x 6" cast stone samples showing full range of colors and textures and finish for exposed surfaces. One sample will be selected at random and cut in half to expose aggregates.

2. Before cast stone materials are delivered to the job site, submit one full sized cast stone unit of each type required, showing approved color, texture profile and finish.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of cast stone with requirements indicated.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of five completed brownstone replication projects with dates of completion, project names and addresses, names and addresses of architects and owners, and other information specified.

1. Include copies of material test reports for completed projects, indicating compliance of cast stone with ASTM C 1364 including results of freeze-thaw testing.

1.06 DELIVERY, STORAGE AND HANDLING

A. Pack, handle, and ship cast stone units in suitable packs or pallets.

1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units, if required, using dollies with wood supports.

2. Store cast stone units on wood skids or pallets with non-staining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.

B. Store installation materials on elevated platforms, under cover, and in a dry location.

C. Protection:

1. Use all means necessary to protect cast stone and related materials before, during and after installation and to protect the installed work and materials of all other trades.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary for Architect's approval, at no additional cost to the Owner.

1.07 COORDINATION

A. Coordinate production and delivery of cast stone with masonry restoration work to minimize the need for on-site storage and to avoid delaying the Work.

1.08 ENGINEERING SERVICES

A. The Contractor shall provide engineering services of a Professional Engineer, who is registered as a structural engineer in the Commonwealth of Massachusetts, and who shall structurally design and assume professional responsibility for cast stone units and all connections required to handle, erect, and attach cast stone to the building. Reinforcing and connections when shown on the contract drawings shall be considered minimum reinforcing required. Submit shop drawings with calculations stamped by a Professional Engineer, indicating the design of cast stone and all connections showing compliance with these specifications.

PART 2 - PRODUCTS

2.01 CAST STONE COLOR AND FINISH

A. The Cast Stone used in this work shall match color and texture of samples approved by the Architect and shall match the profiles of the original units.

B. The samples shall be approved by the Architect before the manufacturer shall be required to proceed with the work.

C. Exposed surfaces, unless otherwise specified, shall exhibit a typically fine grained texture similar to natural brownstone. No bug holes shall be permitted.

2.02 MOLDS AND MATERIALS

A. Certain changes in profile, section and wash may be required in the model/pattern phase in order to improve the durability and water shedding capability of the original units.

B. All models and patterns shall be prepared by skilled craftsmen in a correct and artistic manner in strict accordance with the spirit and intent of the original units and the contract drawings. Models shall be approved by Architect before any work is executed from them.

C. Provide forms and molds as required to produce finished surfaces. Accurately construct forms that are mortar tight and of sufficient strength to provide cast stone units of shape, lines and sizes shown.

D. Molds to be taken from stones removed from building. Where the existing profile is severely deteriorated or where stones can not be removed from the building, models to be fabricated by the cast stone fabricator.

2.03 CAST STONE MATERIALS

A. General: Comply with ASTM C1364 and the following:

1. Portland Cement: ASTM C150, Type I/II, containing not more than 0.60 percent total alkali when tested according to ASTM C114.

2. Fine aggregate shall be carefully graded and washed natural red/brown sands, or manufactured sands meeting ASTM C33, except that gradation may vary to achieve desired finish and texture.

3. Coarse aggregate shall be carefully graded and washed natural gravel, or crushed graded stone such as granite, or other durable stone meeting ASTM C33, except that gradation may vary to achieve desired finish and texture. Coarse aggregate shall be brown crushed stone from Scofield Stone in New Jersey or approved equal.

4. Coloring: All colors added shall be inorganic (natural or synthetic) iron oxide pigments meeting ASTM C979 excluding the use of a cement grade of carbon black pigment, and shall be guaranteed by the manufacturer to be light fast and lime proof. The amount of pigment shall not exceed ten (10) percent by weight of the cement used.

5. Air-Entraining Admixture: ASTM C260, certified by the manufacturer to be compatible with other admixtures used.

a. Add to mixes for units exposed to the exterior at manufacturer's prescribed rate to result in an air content of 5 to 7 percent.

B. Reinforcement: Stainless steel bars complying with ASTM .

1. Stainless Steel Grade 304 or better.

2. Reinforcing bar sizes shall be as shown on approved shop drawings. The material covering in all cases shall be at least twice the diameter of the bars. Stone shall be fully reinforced to take all stresses including handling, temperature changes and structural stresses.

2.03 CAST STONE UNITS

A. Provide cast stone units complying with ASTM C1364.

1. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C666, Procedure A, as modified by ASTM C1364.

B. All Cast Stone used in this work shall have a minimum compressive strength of five thousand (6500) lbs. per square inch and absorption of not greater than five (5) percent when tested in accordance with ACI 704.

C. Absorption: 6 percent maximum at 28 days, per ASTM C 1195 or ASTM C 642.

D. Reinforce units as indicated and as required by ASTM C1364. Use Stainless Steel reinforcement.

E. Fabricate units with sharp arris and details accurately reproduced with indicated texture on all exposed surfaces, unless otherwise indicated.

1. Slope exposed horizontal surfaces at least 1:12, unless otherwise indicated.

2. Provide drips on projecting elements, unless otherwise indicated.

F. Casting Tolerances: Maintain casting, bowing, warping and dimension tolerance to within the following:

1. Overall dimension for height, width and length of units: Plus zero of unit dimension to minus 1/8” in each direction.

2. Bowing or warping: Not to exceed 1/360 of the span.

2.04 FABRICATION

A. Yard cure units until the sum of the mean daily temperatures for each day equals or exceeds 350 deg F.

B. Acid etch or sandblast units to remove cement film from surfaces indicated to be finished.

C. Cast stone shall have sharp arrises to match profiles on approved shop drawings. Provide stone with sinkages to receive anchors.

PART 3 - EXECUTION

A. Installation of cast stone is specified under SECTION 04 90 50 - Cast Stone Installation.

▪ END OF SECTION ▪

SECTION 07 50 00 - ROOFING AND RELATED WORK

PART 1 GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within Division 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. Maintain a weather tight structure throughout construction.

B. Replace existing roofs and flashings in areas indicated.

C. Construct and roof a new cricket adjacent to the chimney.

D. Provide all staging, ladders, lifts, and hoisting as required to access and conduct the work of this Section.

1.4 SUBMITTALS

A. To ensure compliance with manufacturer's warranty requirements, Contractor shall submit shop drawings including roof plan and applicable details.

B. Submit samples of roof slates.

C. Submit mock-up of gutter, including fastening details.

D. At completion, submit maintenance data, Inspector's reports, and Warranty.

1.5 JOB CONDITIONS

A. All existing roofing material must be totally removed, prior to installation.

B. Coordinate with all other trades to avoid unnecessary rooftop traffic.

1.06 PRODUCT DELIVERY AND HANDLING

A. Deliver materials to the job site in the original, unopened containers labeled with the manufacturer's name, brand name and installation instructions.

B. Underlayment must be stored so that it is kept dry and is protected from the elements.

PART 2 - PRODUCTS

2.1 COPPER AND ACCESSORIES

A. All sheet metal flashing and roofing shall be 20 ounce cold rolled copper, ASTM B370

B. All fasteners shall be copper, brass or bronze.

C. All fasteners shall be concealed or protected from weather.

D. Sealant shall be single component polyurethane manufactured by Sika or Tremco.

E. Solder shall be 50 percent block tin and 50 percent pig lead per ASTM B32.

F. All exposed edges shall be hemmed.

G. Downspouts shall be 4” x 6” corrugated, 20 ounce red copper.

E. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 60-mil thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.

PART 3 - EXECUTION

3.1 HOISTING, SCAFFOLDING, STAGING AND PLANKING

Roofing Contractor shall provide scaffolding, staging, and hoisting.

3.2 EXAMINATION

General Contractor shall install new plywood at roof. Examination of substrate and conditions under roof work is to be performed; notify Architect in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected.

Substrate must be even without noticeable high spots or depressions, and must be free of accumulated water, ice or snow.

3.3 REMOVAL OF EXISTING MATERIALS

Existing roofing materials shall be removed by the roofing contractor. All roofing material to be removed shall be carefully lowered to the ground and legally disposed of off-site. No free fall of roofing materials is permitted. Carefully protect existing work.

3.4 SHEET METAL FABRICATION

A. Generally, comply with SMACNA's "Architectural and Sheet Manual," and the requirements of NRCA's "A Manual of Roofing Practice."

1. Teardrop hem all exposed, free edges.

2. Fully solder all non-moving seams. Neutralize flux after soldering.

3. Fabricate to accommodate expansion and contraction. Provide sealant filled expansion control joints within 8 feet of ends of long runs and not over 20 feet on center in between.

4. Fabricate to be free from buckles, waves, oil canning, tool marks, and appearance defects.

5. Fabricate with sharp, even, true, and accurately aligned lines, joints, and seams.

6. Turn and fabricate lock joints to best shed water.

7. Fabricate work for maximum waterproof and weathertight performance.

8. Form work to fit substrates and field conditions.

END OF SECTION 07 50 00