**MANDATORY PRE-BID MEETING**

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<tr>
<th>PROJECT #</th>
<th>P1200-00 Dr. Still Office Stabilization</th>
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<tr>
<td>LOCATION</td>
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</tr>
<tr>
<td>DATE</td>
<td>August 3, 2020</td>
</tr>
<tr>
<td>TIME</td>
<td>10:00 AM</td>
</tr>
<tr>
<td>CONTACT PERSON</td>
<td>Ron Kraemer</td>
</tr>
<tr>
<td>PHONE #</td>
<td>Office #: 609-633-7186</td>
</tr>
<tr>
<td></td>
<td>Cell #: 609-203-2532</td>
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<tr>
<td>MEETING LOCATION</td>
<td>Dr. Still Office - 211 Church Rd. Medford, Burlington County, NJ 08055</td>
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**ALL BIDDERS ARE URGED TO LIMIT THE NUMBER OF REPRESENTATIVES TO ATTEND THE PRE-BID MEETING IN ORDER TO KEEP THE NUMBER OF ATTENDEES TO A MINIMUM IN ORDER TO COMPLY WITH COVID-19 RELATED SOCIAL DISTANCING GUIDELINES. ALL ATTENDEES MUST WEAR FACE MASK COVERINGS**

**MUST ATTEND TO HAVE VALID BID**

**NOTE:** It is each bidder’s responsibility to determine the way to the location of the announced Pre-Bid meeting and to assure their timely arrival at the meeting. A maximum fifteen-minute grace period may be granted by the DPMC Project Manager, at his/her discretion, in case of extenuating circumstances determined prior to the scheduled start time. Bidders will be required to sign in at the beginning of the meeting. After the meeting has officially started, no other bidders will be permitted to sign-in. Failure to sign pre-bid sign in sheet will prohibit the bidder’s proposal from being accepted.
Project Site Location Map

DPMC Project P1200-00

DR. JAMES STILL OFFICE STABILIZATION

211 Church Road, Medford, NJ 08055
GPS Coordinates: 39.915398, -74.822821
Driving Directions
To
211 Church Road, Medford, NJ 08055

From East:
Head west on NJ Rt. 70.
Turn right onto NJ Rt. 541 Medford Mt Holly Rd.
Turn right onto Church Road
Destination will be on Left

From West:
Head East on NJ Rt. 70.
Turn left onto NJ Rt. 541 Medford Mt Holly Rd.
Turn right onto Church Road
Destination will be on Left

From South:
Head north on I-295
Take Exit 34 from I-295 for NJ Rt. 70 E. Head East on NJ Rt. 70.
Turn left onto NJ Rt. 541 Medford Mt Holly Rd.
Turn right onto Church Road
Destination will be on Left

From North:
Head south on I-295
Take Exit 34 from I-295 for NJ Rt. 70 E. Head East on NJ Rt. 70.
Turn left onto NJ Rt. 541 Medford Mt Holly Rd.
Turn right onto Church Road
Destination will be on Left
SPECIFICATION
(Permit Set)

Dr. James Still Office Stabilization

Dr. James Still Office
Medford, Burlington County, N.J.

P1200-00

STATE OF NEW JERSEY

Honorable Philip D. Murphy, Governor
Honorable Sheila Y. Oliver, Lieutenant Governor

DEPARTMENT OF THE TREASURY
Elizabeth Maher Muoio, State Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION
Christopher Chianese, Director

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Catherine R. McCabe, Commissioner

HISTORIC BUILDING ARCHITECTS, LLC
312 W. STATE STREET, TRENTON, NJ

5/13/2020
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AND

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INSTRUCTIONS TO BIDDERS

IB 1  Bid Proposals

IB 1.1 Sealed proposals for the work described herein must be received and time-stamped in the Plan Room, Division of Property Management and Construction (DPMC), 9th Floor, 33 West State Street, P O Box 034, Trenton, NJ 08625-0034. The closing date and time for bids will be stated in the Advertisement for Bid. Bidders are cautioned that reliance on the US Postal Service or other mail delivery or courier service for timely delivery of proposals is at the bidders’ risk. Failure by a bidder to have a sealed proposal reach DPMC by the prescribed time will result in rejection of the unopened submission.

IB 1.2 Bids may be accepted on the following branches of work, as applicable:

a. Lump Sum All Trades
b. General Construction
c. Structural Steel
d. Plumbing
e. Heating, Ventilating and Air Conditioning
f. Electrical
g. Special Categories as may be required

IB 1.3 Contractors classified by DPMC may obtain contract documents at the DPMC address above, or upon written request, subject to payment of applicable fees. Each bidder is herewith put on notice that its general classification by DPMC is not the sole basis for qualification for the award of work. The Director reserves the right to deny award to any bidder that is not clearly responsible, based upon experience, past performance, financial capability or other material factors, to perform the work required herein.

IB 1.4 The schedule of non-refundable bid fees below is based upon individual trade construction cost estimates. Upon request and at no cost the DPMC will furnish a set of the contract documents for review in the offices of the division at the address noted in paragraph IB1.1 above.

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<td>$100,000 or less</td>
<td>No charge</td>
<td>$25.00</td>
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<tr>
<td>Greater than $100,000</td>
<td>$ 65.00</td>
<td>$25.00</td>
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IB 1.5 Bid proposals based upon the plans, specifications, general, special and supplementary conditions and bulletins shall be deemed as having been made by the contractor with full knowledge of the conditions therein. Bidders are required to visit the site prior to submitting proposals for the work herein described, and to have thoroughly examined the conditions under which the contract is to be executed, including those reasonably observable conditions of the premises which would hinder, delay, or otherwise affect the performance of the contractor required under the terms of the contract. The State will not allow claims for additional costs as a result of the contractor's failure to become aware of the reasonably observable conditions affecting its required performance. The bidder is required to make appropriate allowances in the preparation of the bid for the
accommodation of such conditions. Bidders must warrant in the bid documents that the bidder is familiar with conditions existing at the site at the time the bid is submitted.

IB 1.6 Bid proposals shall be submitted on the standard form provided by DPMC, enclosed in a sealed envelope issued by DPMC. The name and address of the bidder must be indicated on the envelope, as well as indication of the DPMC project number, project location and other appropriate identification.

IB 1.7 All amounts in the bid documents shall be stated in numerical figures only.

IB 1.8 The bidder must include in the bid envelope: (1) the proposal signed by the bidder, (2) the executed affidavit of non-collusion, (3) the executed Source Disclosure Certification Form as further described in section IB1.11, (4) the executed Disclosure of Investment Activities in Iran Form and (5) bid security as further described in Section IB6.

IB 1.9 Proposals shall remain open for acceptance and may not be withdrawn for a period of 60 calendar days after the bid opening date.

IB 1.10 Proposals not submitted and filed in accordance with instructions contained herein and in the Advertisement for Bids may be rejected as non-responsive.

IB 1.11 Procurement Reform

a. RESTRICTIONS ON POLITICAL CONTRIBUTIONS – In accordance with N.J.S.A. 19:44A-20.13, et seq., bidders submitting a bid on or after October 15, 2004, shall be required to submit a Certification and Disclosure Form and Ownership Disclosure Form for all Business Entities. These forms must be submitted by the bidder and approved prior to contract award.

N.J.S.A. 19:44A-20.13, et seq, prohibits State departments, agencies and authorities from entering into a contract that exceeds $17,500 with an individual or entity that has made a contribution to that political party committee. N.J.S.A. 19:44A-20.13, et seq, further requires the disclosure of all contribution to any political organization organized under section 527 of the Internal Revenue Code that also meets the definition of “continuing political committee” within the meaning of N.J.S.A. 19:44A-3(n) and N.J.A.C. 19:25-1.7. The successful bidder shall also be required to adhere to all continuing obligations contained in N.J.S.A. 19:44A-20.13, et seq, regarding contributions and disclosures as required in N.J.S.A. 19:44A-20.13, et seq.

b. Source Disclosure Certification - Pursuant to N.J.S.A. 52:34-13.2, et seq., all bidders submitting a proposal shall be required to complete a Source Disclosure Certification that all services will be performed in the United States. The bidder shall disclose the location by country where services under the contract will be performed and any subcontracted services will be performed. The Source Disclosure Certification will be attached to the bid proposal.

c. MacBride Principles - Pursuant to N.J.S.A. 52:34-12.2, a bidder must complete a certification on the DPMC form provided prior to contract award to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates pursuant to N.J.S.A. 52:34-12.2, that the bidder has no ongoing business activities in Northern Ireland and does not maintain a physical
presence therein through the operation of offices, plants, factories, or similar facilities, either directly or indirectly, through intermediaries, subsidiaries or affiliated companies over which it maintains effective control; or will take lawful steps in good faith to conduct any business operations it has in Northern Ireland in accordance with the MacBride principles of nondiscrimination in employment as set forth in N.J.S.A. 52:18A-89.8 and in conformance with the United Kingdom’s Fair Employment (Northern Ireland) Act of 1989, and permit independent monitoring of their compliance with those principles. If a contractor who would otherwise be awarded a contract or agreement does not complete the certification, then the Director may determine, in accordance with applicable law and rules, it is in the best interest of the State to award the contract or agreement to the next responsible bidder who has completed the certification. If the Director finds the contractor to be in violation of the principles which are the subject of this law, s/he shall take such action as may be appropriate and provided for by law, rule or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the contractor in default and seeking debarment or suspension of the contractor.

d. Investment Activities in Iran - Pursuant to N.J.S.A. 52, 32-55, et seq., any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete a certification with their bid on the DPMC form provided to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury’s Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division of Purchase and Property’s website at www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Bidders must review this list prior to completing the certification. Failure to complete the certification may render a bidder’s proposal non-responsive. If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

**IB 2 Bid Modification**

**IB 2.1** A bidder may modify its bid proposal by electronic mail or letter at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the DPMC prior to such closing time. A mailed confirmation of any modification signed by the bidder must have been mailed and time-stamped by the US Postal Service prior to the specified closing time. Such confirmation, whether transmitted electronically or by mail, shall be accompanied by a newly executed affidavit of non-collusion.

**IB 2.2** Communications shall not reveal the basic bid price but shall only provide the amount to be added, subtracted or modified so that the final prices or terms will not be revealed until the sealed proposal is opened. If written confirmation of the telegraphic modification is not received within two working days after the scheduled closing time, no consideration will be given to the telegraphic modification.
IB 2.3  Bids may be withdrawn upon receipt of a bidder's written request prior to the time fixed for the bid opening. A bidder's right to withdraw a bid is lost after a bid has been opened. If an error has been made in the bid amount, request for relief from the bid may be made in writing to the Director. The written request shall be signed by an authorized corporate officer. A determination of whether the bidder will be released shall be at the sole discretion of the Director, who shall issue a finding within five working days of receipt of all pertinent information relating to such request for relief.

IB 3  Consideration of Bids

IB 3.1  Award of Contracts or Rejection of Bids:

a. Contracts will be awarded to the lowest responsible bidder. The awards will be made, or the bids rejected, within 60 calendar days from the date of the opening of bids. At the discretion of the Director, a bid extension may be requested from the bidders if circumstances warrant an extension.

b. The Director reserves the right to award the contract on the basis of the single bid for the entire work, or on the basis of a separate bid and alternate, or any combination of separate bids and alternates, which the Director deems best serves the interest of the State.

c. The Director reserves the right to waive any bid requirements when such waiver is in the best interests of the State, and where such waiver is permitted by law. Such waiver shall be at the sole discretion of the Director.

d. The Director reserves the right to reject any and all bids when such rejection is in the best interests of the State. The Director also may reject the bid of any bidder which, in the Director's judgment, is not responsible or capable of performing the contract obligations based on financial capability, past performance, or experience. A bidder whose bid is so rejected may request a hearing before the Director by filing a written notice.

IB 3.2  The bidder to be awarded the contract shall execute and deliver the requisite contract documents, including payment and performance bonds, within the time specified. Upon the bidder's failure or refusal to comply in the manner and within the time specified, the Director may either award the contract to the next low responsible bidder or re-advertise for new proposals. In either case, the Director may hold the defaulting bidder and its surety liable for the difference between the applicable sums quoted by the defaulting bidder and the sum which the State may be obligated to pay to the contractor which is contracted to perform and complete the work of the defaulting bidder.
IB 4  Awards

IB 4.1 In executing a contract, the successful bidder agrees to perform the required work in a good and workmanlike manner to the reasonable satisfaction of the Director, and to complete all work within the number of calendar days specified in its contract.

IB 4.2 Successful bidders will be notified of the time and place for the signing of contracts. Key requirements in the contract, including, but not limited to, the number of days of performance of the contract, manner and schedule of payments, and other administrative details will be reviewed at the award meeting. The time and place of the first job meeting will be announced at the award meeting.

IB 4.3 The State reserves the right to award the contract upon the basis of a single bid for the entire work, or on the basis of separate bids for each prime trade when the total of the separate bids is less than the single bid. Alternates will be accepted or rejected in numerical sequence as cited in the bid documents and shall not be selected at random except as provided herein. Add alternates and deduct alternates will be specified separately. The State may choose from the add and deduct alternates without priority between the two groups so long as selection within each group is in numerical sequence from the first to the last. This limitation shall not apply, however, to any alternates concerning proprietary items. The Director, with the approval of the Using Agency, may accept alternates out of sequence, provided the Director states the reasons for so doing, in writing, within five working days following the opening of bids.

IB 4.4 Should submission of unit prices be required for specified items of work in bid proposals, they will be considered in the evaluation of bids as set forth in the bid proposal form.

IB 4.5 The successful bidder and all of its subcontractors are required to comply with the requirements of N.J.S.A. 10:5-31 et seq., regarding Equal Employment Opportunity in Public Works Contracts.

IB 5  Qualification of Bidders

IB 5.1 If the successful bidder is a corporation not organized under the laws of the State of New Jersey or is not authorized to do business in this State (foreign corporation), the award of the contract shall be conditioned upon the prompt filing by the said corporation of a certificate to do business in this State and complying with the laws of this State in that regard. This filing must be made with the Division of Revenue. No award of contract will be made until the Division of Revenue confirms this authorization.

IB 5.2 The State requires that each contractor, except in the case of a single contractor, shall perform a minimum of 35 percent of the contract work by the contractor's own forces. However, the Director has the sole discretion to reduce this percentage depending upon the nature and circumstances in any particular case, if the Director determines that to do so would be in the best interests of the State, and provided that the bidder submits a written request with the original bid proposal.

IB 5.3 The State reserves the right to reject a bidder at any time prior to the signing of a contract if information or data is obtained which, in the opinion of the Director, adversely affects the responsibility and/or the capability of the bidder to undertake and to complete the work, regardless of the bidder's previous qualification or classification. The State may
conduct any investigation as it deems necessary to determine the bidder's responsibility and capacity, and the bidder shall furnish all information and data for this purpose as requested by the State.

IB 5.4 Each bidder must be classified by DPMC in accordance with the provisions of the classification statute, NJSA 52:35-1, et seq. In the case of a single bid for all of the work, the bidder shall include in the bid the names of its principal subcontractors (in categories as listed in IB1.2 above), which must also be classified in accordance with the said statute.

IB 5.5 At the time of the bid due date, the bidder and the subcontractors must be registered in accordance with “The Public Works Contractor Registration Act”, N.J.S.A. 34:11-56.48, et seq. All questions regarding registration shall be addressed to:

Contractor Registration Unit
New Jersey Department of Labor
Division of Wage & Hour Compliance
P O Box 389
Trenton NJ 08625-0389
Telephone: 609-292-9464
FAX: 609-633-8591

IB 5.6 In accordance with N.J.S.A. 52:32-44, et seq. Public Law 2001, Chapter 134, all contractors and subcontractors providing goods/services to State agencies and authorities are required to provide the contracting agency or authority with proof of registration with the Department of Treasury, Division of Revenue. The basic registration process involves the filing of Form NJ-Reg., which can be filed online at www.state.nj.us/njbgs/services.html or by calling (609) 292-7077 or (609) 292-1730.

IB 6 Deposit and Bid Bond

IB 6.1 The Proposal, when submitted, shall be accompanied by a Bid Bond satisfactory to the Director, for the sum of not less than fifty percent (50%) of the Total Bid including alternates, if applicable.

IB 6.2 The Bid Bond shall be properly filled out, signed, and witnessed.

IB 6.3 The Bid Bond shall be accompanied by a copy of the power of attorney executed by the surety company or companies. The power of attorney shall set forth the authority of the attorney-in-fact who has signed the bond on behalf of the surety company to bind the company and shall further certify that such power is in full force and effect as of the date of the bond.

IB 6.4 If the bidder whose proposal is accepted is unable to provide the performance and payment bonds or fails to execute a contract, then such bidder and the bid bond surety, where applicable, shall be obligated to pay to the State the difference between the amount of the bid and the amount which the State contracts to pay another party to perform the work. The bidder and the surety shall pay, upon demand, the entire amount of the State’s difference in cost. Should there be a deficiency in excess of the bid deposit, the bidder shall make immediate payment to the State for any such deficiency. Nothing contained herein shall be construed as a waiver of any other legal remedies that the State may have against the contractor.
IB 6.5 Attorneys-in-fact who sign bid bonds or contract bonds must file a certified power-of-attorney with the State indicating the effective date of that power.

IB 7 Performance and Payment Bond

IB 7.1 The successful bidder shall furnish within ten (10) calendar days after notice of award both a performance bond in statutory form in an amount equal to one hundred percent (100%) of the total contract price as security for the faithful performance of this contract and a payment bond in statutory form in amount equal to one hundred percent (100%) of the contract price as security for the payment of all persons and firms performing labor and furnishing materials in connection with this contract. The performance bond and the payment bond may be combined or in separate instruments in accordance with law. If combined, they must be for 200% of the award amount. No contract shall be executed unless and until each bond is submitted to and approved by the State. The surety must be presently authorized to do business in the State of New Jersey. In addition to the other coverage provided, the Bond shall cover all Contract guarantees and any other guarantees/warranties issued by the Contractor.

IB 7.2 The cost of all performance and payment bonds shall be paid for by the successful bidder.

IB 7.3 If at any time the State, for justifiable cause, is dissatisfied with any surety which has issued or proposes to issue a performance or payment bond, the contractor shall, within ten calendar days after notice from the State to do so, substitute an acceptance bond (or bonds). The substituted bond(s) shall be in such form and sum and executed by such other surety or sureties as may be satisfactory to the State. The premiums on such bond(s) shall be paid by the contractor. No contract shall be executed and/no payment made under a contract until the new surety or sureties shall have furnished such an acceptable bond to the State.

IB 7.4 Bonds must be legally effective as of the date the contract is signed. Each must indicate the contractor's name exactly as it appears on the contract. Current attorney-in-fact instruments and financial statement of the surety must be included with the bonds. Bonds must be executed by an authorized officer of the surety. Bonds furnished under this section shall conform in all respects to the requirement and language of NJSA 2A:44-143 to 147.

IB 8 Bulletins and Interpretations

IB 8.1 No interpretation of the meaning of the plans, specifications or other pre-bid documents will be provided to any bidder unless such interpretation is made in writing to all prospective bidders prior to the opening of bids. Any such interpretations must be identified in bid proposals submitted. Any interpretations which are not entered in accordance with this provision shall be unauthorized and not binding upon the State.

IB 8.2 Every request for an interpretation relating to clarification or correction of the plans, specifications, or other bid documents must be made in writing, addressed to the architect/engineer and the DPMC Director, and must be received at least five (5) working days prior to the date fixed for the opening of the bids. Any and all interpretations, clarifications or corrections and any supplemental instructions must be issued by the Director in the form of written bulletins and mailed by certified mail, return receipt requested, or by electronic notice to all prospective bidders not later than three (3) working days prior to the date of the opening of bids. All bulletins issued shall become part of the
contract documents and shall be acknowledged in all bid proposals. Failure of a bidder to acknowledge receipt of all such bulletins and interpretations by the time of bid opening shall result in its proposal being considered non-responsive, at the option of the Director.

**IB 8.3** Each bidder shall be responsible for thoroughly reviewing the contract documents prior to the submission of bids. Bidders are advised that no claim for expenses incurred or damages sustained as a result of any error, discrepancy, omission, or conflict in the contract documents shall be recognized by the State unless, and only to the extent that, a written request for interpretation, clarification or correction has been submitted in compliance with Section IB8.2 and provided the matter has not been addressed by the State through the issuance of a bulletin interpreting, clarifying or correcting such error, discrepancy, omission or conflict.

**IB 9 Assignments**

**IB 9.1** The contractor shall not assign all or any part of this contract without written consent of the State. Money due (or to become due) the contractor hereunder shall not be assigned for any purposes whatsoever.

**IB 10 Federal Excise Taxes and State Sales Tax**

**IB 10.1** In general, bidders, in preparing bids, must take into consideration applicable Federal and State tax laws.

**IB 10.2** Materials, supplies or services for exclusive use in erecting structures or buildings or otherwise improving, altering or repairing all State-owned property are exempt from the State sales tax. The successful bidder must submit Division of Taxation form ST13, Exempt Use Certificate, to the seller of all materials, supplies or services that will be incorporated into the Work.

**IB 10.3** Bidders must determine the current status and applicability of any tax laws, and the contractor may make no claim based upon any error or misunderstanding as to the applicability of any tax laws.

**IB 10.4** Purchases or rentals of equipment are not exempt from any tax under the State Sales Tax Act.

**IB 11 Restrictive Specifications**

**IB 11.1** Should any bidder determine before the bid due date that any portion of the specifications or drawings specify a particular product which can be provided by only one supplier or manufacturer, with the result that competitive prices are not available, the bidder shall immediately notify the Director in writing of such fact.

**IB 11.2** If such notice is not given in a timely manner, it shall be assumed that the bidder has included the estimate of such sole source in the bid. However, if the Director is notified in a timely manner of the sole source of supply or manufacture, the Director may order the product re-bid or take other lawful action. Such action shall be at the Director’s sole discretion.
IB 12  Offer of Gratuities

IB 12.1 Bidders are advised that the laws of New Jersey (NJSA 52:34-19) make it a misdemeanor to offer, pay or give any fee, commission, compensation, gift or gratuity to any person employed by the State. Also, Executive Order #189 (1988) requires that all requests for proposals and contracts issued by the State specify prohibitions on vendor (contractor) activities, the violation of which shall render the vendor liable to ineligibility for State contracts, pursuant to the debarment procedures set forth in N.J.A.C. 17:19-4.1., et seq. These prohibited activities include the following:

a. No vendor shall pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by NJSA 52:34D-13b. and e., in the Department of Treasury or any other agency with which such vendor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by NJSA 52:13D-13i., of any such officer or employee, or any partnership, firm, or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of NJSA 52:13D-13g.

b. The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the vendor to the Attorney General and the Executive Commission on Ethical Standards.

c. No vendor may, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in such vendor to, any State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he is employed or associated or in which he has an interest within the meaning of NJSA 52:13D-13g. Any relationships subject to this provision shall be reported in writing forthwith to the Executive Commission on Ethical Standards, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest.

d. No vendor shall influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.

e. No vendor shall cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his official position to secure unwarranted privileges or advantages for the vendor or any other person.
f. The provisions cited above in paragraphs IB12.1.a. through e. shall not be construed to prohibit a State officer or employee or special State officer or employee from receiving gifts from or contracting with vendors under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the State Ethics Commission on Ethical Standards may promulgate under paragraph IB12.1.c. above.

END OF INSTRUCTIONS TO BIDDERS
GENERAL CONDITIONS

ARTICLE 1 - GENERAL PROVISIONS

1.1 DEFINITIONS:

1.1.1 Architect/Engineer: The Architect/Engineer (“A/E”) is the consultant engaged by the DPMC to prepare the design and perform certain contract administration functions in accordance with the provisions of its contract with the DPMC.

1.1.2 Bulletin: A document, issued by DPMC prior to the opening of bids, which supplements, revises or modifies the bid document(s).

1.1.3 Change in the Work: A change in the Project and the Contract Documents, including, but not limited to, an increase or decrease in the Work, an acceleration or extension of time for the performance of the Work.

1.1.4 Change Order: A written order, directing or authorizing a Change in the Work executed by the DPMC and agreed to by the Contractor (except in the case of unilateral change orders executed by DPMC) that includes all adjustments to work, compensation and/or time warranted by the Change in the Work.

1.1.5 Code Official: the individual licensed by the NJ Department of Community Affairs authorized to enforce the NJ Uniform Construction Code (UCC) and approve or reject the Work for NJ UCC compliance.

1.1.6 Construction Management Firm or “CMF”: A person or firm that may be engaged by the DPMC to assist DPMC in the administration of its contracts.

1.1.7 Contract: The entire and integrated agreement between the Contractor and the DPMC encompassing all of the Contract Documents.

1.1.8 Contract Documents: The executed form of Contract, General Conditions, Supplementary Conditions, Supplementary Instructions, Bulletins, plans, specifications, instructions to bidders, addenda, responses to requests for information, Price Proposal, Change Orders, other amendments, including construction change directives, and all exhibits, appendices and documents attached to or referenced in any of the foregoing materials.

1.1.9 Contract Limit Lines: The lines shown on the Contract Drawings that define the boundaries of the Project, and beyond which no construction work or activities may be performed by the Contractor unless otherwise noted on the drawings or specifications.

1.1.10 Contractor: The business entity with whom the DPMC enters a contract for the performance of the construction of a construction Project by the terms set forth in the Contract Documents.

1.1.11 Contract Price: The sum stated in the Contract, as it may be adjusted in accordance with the Contract Documents, that represents the total amount payable by the DPMC to the Contractor for performance of the Work.

1.1.12 Day: A calendar day, unless otherwise designated.
1.1.13 **Director:** The person authorized by statute to administer the design, engineering and construction of all State buildings and facilities. The Director is the contracting officer representing the State personally or through authorized representatives in all relationships with Contractors, consultants and Architects/Engineers. This includes designees or an authorized administrative contracting officer acting within the limits of his or her authority. The Director or his or her duly authorized representative is the interpreter of the conditions of this contract and the judge of its performance.

1.1.14 **Division of Property Management and Construction (DPMC):** The State of New Jersey's contracting agency for the design and construction of State facilities.

1.1.15 **Final Acceptance and Completion:** The date following receipt and acceptance by DPMC of all administrative and close-out documents. Following acceptance, the DPMC will issue a Certificate of Final Acceptance and Completion for the Project.

1.1.16 **Generally Accepted Accounting Principles:** The common set of accounting principles, standards and procedures that companies use to compile their financial statements. Accounting records must identify all labor and material costs and expenses, whether they are direct or indirect. The identity must include at least the Project number for direct expenses and/or account number for indirect expenses.

1.1.17 **NJUCC or Code:** The New Jersey Uniform Construction Code which governs the permit and approval process for construction projects.

1.1.18 **Notice:** A written directive or communication given by DPMC to the Contractor to act or perform work or carry out some other contractual obligation, or a written communication to be served by the Contractor upon the State. A notice served on the Contractor will be deemed to have been duly served if delivered to an individual or member of the firm or entity or to an officer of the corporation for whom it was intended. This includes regular mail, e-mail, delivery by courier, or registered or certified mail, or facsimile to the Contractor's business address cited in the Contract documents. A notice from the Contractor to the State shall be deemed to have been duly served only if delivered to the Director or the Director's duly authorized representative.

1.1.19 **Notice to Proceed:** The written communication issued by the DPMC to the Contractor directing the Contractor to begin the Work. The contract calendar day duration period will commence on the effective date noted.

1.1.20 **Project:** The term for the entire public works engagement. It includes the design, construction work and all administrative aspects required to fully complete the engagement.

1.1.21 **Punch List:** The list of incomplete or defective Work, compiled by DPMC and/or its authorized representative, which remains to be completed after achievement of Substantial Completion.

1.1.22 **Schedule:** The time tracking mechanism that establishes the Project’s allotted time requirements for completion as more specifically described in Article 6 of these General Conditions. When the construction activity items of the schedule have a monetary value associated with them, the schedule is referred to as a “costed” or “cost-loaded” schedule.
1.1.23 **Site:** The geographical location of the facility or property at which the Work under the Contract is to be performed.

1.1.24 **State or Owner:** The State of New Jersey, acting through DPMC.

1.1.25 **Subcontractor:** The business entity that enters into an agreement with the Contractor for the performance of work or materials under this Contract. Also refers to any agreement between a Subcontractor and any of lower tier Subcontractors. Such an agreement creates no relationship, legal or otherwise, between the DPMC and the Subcontractor(s) and/or lower tier Subcontractor(s).

1.1.26 **Substantial Completion:** The date when all essential requirements of the Contract Documents have been satisfied so that the purpose of the Contract Documents is accomplished, as determined by the DPMC including training of staff by the Contractor on all equipment, and resulting in the issuance of a temporary Certificate of Occupancy, a permanent Certificate of Occupancy or a permanent Certificate of Acceptance and when the Work and the facility can be safely occupied and used in accordance with its intended purpose. DPMC may condition issuance of a Certificate of Substantial Completion upon satisfactory receipt of critical documents.

1.1.27 **Unit Schedule Breakdown:** A detailed list of the Work activities required for Project construction, other elements associated with fulfilling the requirements of the Contract (bonds, insurance, etc.), major items of material, labor or equipment, and the prices associated with each of them.

1.2.28 **Using Agency:** The State department or agency for whom the construction project is being completed.

1.1.29 **Work:** All construction, supervision, labor, material and equipment necessary to complete the obligations under the Contract including Operation and Maintenance Manuals, Punch List completion, and As-Built Documents.

### 1.2 CONTRACT DOCUMENTS TO BE PROVIDED BY DPMC

Upon Contract award, the DPMC will furnish to the Contractor, free of charge, three copies of the drawings and specifications, and any additional instructions by means of supplemental contract documents as otherwise necessary for the proper execution of the Work, unless otherwise provided in the Contract Documents. Upon request, additional copies of the contract documents will be furnished at the Contractor's expense.

### 1.3 INTENT OF THE CONTRACT

1.3.1 The drawings, specifications and all of the Contract Documents are intended to require the Contractor to provide for everything necessary to accomplish the proper and complete finishing of all work. For the Project, the Contractor shall perform all of the obligations and work identified in the Contract Documents, regardless of the manner in which it is divided among the trades or the order in which it appears in the Contract Documents. All work and materials included in the specifications and not shown on the drawings, or shown on the drawings and not in the specifications shall be performed and/or furnished by the Contractor. The Contractor shall include any incidental materials
and/or Work not indicated in the drawings and/or the specifications which are nevertheless necessary for the development of the Project and are reasonably inferable from the contract documents and industry practice. The Contractor shall perform all such work and furnish all such materials as if particularly delineated or described in the contract documents as part of the bid proposal.

1.3.2 The Contractor acknowledges that in preparing its bid, the Contractor had the obligation to raise any reasonably observable errors, omissions, ambiguities or discrepancies and request an interpretation of the alleged errors, omissions, ambiguities or discrepancies. If the Contractor failed to do so, it will have waived all rights to a Change Order or claim and the Contractor will be responsible to complete the Work as required, consistent with the intent of the Contract Documents as interpreted by the DPMC, without additional compensation.

1.3.3 No interpretation of the meaning of the plans, specifications or other Contract Documents provided prior to bid submission shall be binding upon the State for any purpose unless issued in a Bulletin.

1.3.4 The Contractor shall abide by and comply with the intent and meaning of the Contract Documents taken as a whole, and shall not take advantage of any error or omission, should any exist. Should the Contractor become aware of the existence of any error, omission or discrepancy, the Contractor shall immediately notify the DPMC and the Architect/Engineer of any such errors, omissions, ambiguities or discrepancies and seek correction or interpretation thereof prior to commencement of the Work at issue. The Architect/Engineer shall issue a written interpretation. The Contractor shall do no work outside of the Contract Documents, unless written authorization to proceed from the DPMC is received by the Contractor.

1.3.5 Each and every provision required by law to be inserted in the Contract Documents is deemed to have been inserted therein. If any such provision has been omitted or has not been correctly inserted, then upon application of either party, the Contract may be modified to provide for such insertion or correction.

1.3.6 The order of precedence pertaining to interpretation of Contract Documents is as follows:
   a. Executed Contract
   b. Bulletins and Instructions
   c. Supplemental General Conditions
   d. Specifications and General Conditions
   e. Drawings, in the following order of precedence:
      (1) Notes on drawings
      (2) Large scale details
      (3) Figured dimensions
      (4) Scaled dimensions
1.3.7 Where there may be a conflict in the Contract Documents not resolvable by application of the provisions of this Article, then the more expensive labor, materials, or equipment shall be assumed to be required and shall be provided by the Contractor.

1.3.8 On all work, it shall be the responsibility of the Contractor, by personal inspection of the existing building, facility, plant or utility systems, to ascertain the accuracy of any information given. This shall be the case, whether or not such information is indicated on the drawings, included in the specifications, or shown in any other documentation that is available. The Contractor shall have an affirmative duty to make reasonable inquiry for all available information. The Contractor shall include the costs of all material and labor required to complete the Work based on inspection and reasonably observable conditions.

1.4 WORKDAYS

Regular working hours will be defined in the Contract Documents. Changes thereto may be granted with written approval of the DPMC representative. Any work required to be performed after regular working hours or on Saturdays, Sundays, or legal holidays as specially set forth in the Contract documents, as may be reasonably required and consistent with contractual obligations, shall be performed at the amount set forth in the Contractor’s bid without additional expense to the State. The Contractor shall obtain written approval of the DPMC representative for performance of work after regular working hours or on non-regular workdays at least forty-eight (48) hours prior to the commencement of overtime, unless such overtime work is caused by an emergency. If the Contractor seeks such approval for the overtime work, same shall be performed at no additional cost to the DPMC except in the event of an emergency, at which time, the DPMC, in its sole discretion, shall determine if the submitted overtime is compensable.

1.5 ASSIGNMENTS

The Contractor shall not assign all or any part of this Contract without the written consent of the Director. Money due (or to become due) the Contractor hereunder shall not be assigned for any purpose whatsoever without the written consent of the Director.

1.6 STATE SALES TAX

1.6.1 Materials, supplies or services for exclusive use in the construction of structures or buildings or otherwise improving, altering or repairing all State-owned property are exempt from the State sales tax.

1.6.2 Purchases or rentals of equipment are not exempt from any tax under the State Sales Tax Act.
ARTICLE 2 - OWNER/DPMC

2.1 DPMC’S REPRESENTATION

The DPMC will be represented on the Project by DPMC’s designated representative(s). DPMC’s designated representative(s) have only those duties that are required of the Owner under this Contract.

2.2 RIGHT TO PERFORM WORK

The DPMC may, and reserves the right to, enter upon the premises at any and all times during the progress of the Work, or cause others to do so, for the purpose of performing any work or installing any apparatus or carrying on any construction not included in the Contract Documents, or for any other reasonable purpose.

The DPMC shall have the right to defer the beginning of Work or to suspend the whole or any part of the Work whenever, in the sole discretion of the DPMC, it may be necessary or expedient for the State to do so.

2.3 MEANS AND METHODS

The State will not be responsible for, nor have control or charge of construction means, methods, techniques, sequences of procedures, or safety precautions and programs in connection with the Work. The State will not be responsible for, nor have control or charge of, the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other person performing any of the Work.
ARTICLE 3 - ARCHITECT/ENGINEER

3.1 DUTIES AND RESPONSIBILITIES

3.1.1 The Architect/Engineer (“A/E”) is the consultant engaged by the DPMC to prepare the design and perform certain contract administration functions in accordance with the provisions of its contract with the DPMC.

3.2 PROGRESS MEETINGS

The Architect/Engineer will attend, chair and issue record minutes of bi-weekly job progress meetings.

3.3 SITE OBSERVATIONS

3.3.1 The Architect/Engineer will monitor the execution and progress of the Work. The Architect/Engineer will at all times be provided access to the Work. The Contractor shall provide facilities for such access so as to enable the Architect/Engineer to perform its functions.

3.3.2 The Architect/Engineer will not be responsible for, nor have control or charge of construction means, methods, techniques, sequences of procedures, or safety precautions and programs in connection with the Work. The Architect/Engineer will not be responsible for, nor have control or charge of, the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other person performing any of the Work.

3.4 SHOP DRAWINGS AND SUBMITTALS AND INVOICES

As more specifically described in Article 4, the Architect/Engineer will review, approve or take other appropriate action relating to Contractor’s submittals, including shop drawings, product data and samples, and as – built drawings, to assure conformance with the requirements of the Contract. Such actions shall be taken with reasonable promptness. Approval of a specific item shall not indicate approval of an assembly of which the item is a component.

3.5 PAYMENT APPROVALS

3.5.1 The Architect/Engineer is responsible for the timely review of all invoices submitted by the Contractor. The Architect/Engineer shall inform the Contractor of any deficiencies therein. When the payment voucher is deemed accurate, the Architect/Engineer shall recommend approval of Contractor invoices.

3.5.2 The Architect/Engineer will review and recommend approval of Contractor closeout documentation in conjunction with the final application for payment.
ARTICLE 4 - THE CONTRACTOR

4.1 REVIEW OF THE CONTRACT DOCUMENTS AND FIELD CONDITIONS

4.1.1 The Contractor has the duty to thoroughly examine and be familiar with all of the Contract Documents and the Project site. The Contractor shall investigate and accurately determine the nature and location of the Work, the current building equipment and systems, labor and material conditions, and all matters which may in any way affect the Work or its performance.

4.1.2 The Contractor shall be deemed to have verified all reasonably observable conditions outside the Contract limit lines to determine whether any conflict exists with the Work that the Contractor is required to perform under the Contract. This includes but is not limited to a check on elevations, utility connections and other site data. If a condition changed from the time of the bid to the time of the issuance of the Notice to Proceed, the Contractor shall notify the Architect/Engineer immediately. The Contractor shall immediately report any conflicts prior to the bid proposal due date or waive any claim for additional compensation arising from such conflict.

4.1.3 During the progress of the Work, the Contractor shall immediately report in writing any alleged error, inconsistency, ambiguity or omission in the Contract Documents to DPMC. The Contractor shall not continue with any work that is affected by such alleged error, inconsistency, ambiguity or omission until the DPMC has had the opportunity to respond. Any error, inconsistency, ambiguity or omission shall be addressed pursuant to appropriate procedures set forth in these General Conditions.

4.1.4 Following notification of an alleged error, inconsistency, ambiguity or omission, the DPMC may issue supplemental instructions for the proper execution of the Work. The Contractor shall do no work without proper supplemental instructions. In giving such supplemental instructions, the DPMC will have the right to direct the Contractor to make minor changes in the Work without payment of additional monies. This provision is not intended to infringe upon or limit the DPMC’s authority to otherwise direct changes in the Work, described elsewhere in these general conditions.

4.1.5 Where certain work is shown in complete detail, but not repeated in similar detail in other areas of the drawings, or if there is an indication of continuation with the remainder being shown only in outlines, the Work shown in detail shall be understood to be required in other like portions of the Project.

4.1.6 Unless otherwise directed in writing by the DPMC, the Contractor shall perform no portion of the Work without appropriate approvals as may be applicable and required by the Contract Documents.

4.1.7 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, equipment, materials, tools, construction equipment and machinery, water, heat, utilities, transportation and other facilities and services necessary for the proper execution, protection, and completion of the Work.
4.2 INSURANCE

The Contractor shall secure and maintain in force, for the term of the Contract, insurance coverage provided in Section 13.4. The Contractor shall provide the State of New Jersey with current certificates of insurance for all coverage and renewals thereof which must contain a provision that the insurance provided in the certificate shall not be canceled for any reason except after thirty (30) calendar day’s written notice to the State of New Jersey. If cancellation occurs, the Contractor shall immediately procure new coverage, not allowing any lapse of coverage to occur.

4.3 PERMITS, LAWS, AND REGULATIONS

4.3.1 The DPMC shall obtain and pay for the construction permits and inspections (building, plumbing, electrical, elevator and fire), required by the Department of Community Affairs (DCA). When permits are issued by DCA, the appropriate licensed Contractors and/or Subcontractors shall be required to fill out the Contractor section of the Sub-Code Technical Section and sign and affix their raised seal thereto.

4.3.2 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work, and which are legally required at the time of receipt of bids.

4.3.3 All work must be done in accordance with the NJUCC. No work requiring inspections and approval by construction NJUCC code officials is to be covered or enclosed prior to inspection and approval by the appropriate NJUCC enforcement officials.

4.3.4 The Work performed pursuant to this Contract is exempt from local ordinances, codes and regulations as related to the building and the Site on which it is located, except in certain limited circumstances, where construction could adversely affect adjacent property, public sidewalks and/or streets. In those instances, the Contractor shall coordinate its activities with municipal and/or highway authorities having appropriate jurisdiction.

4.3.5 Immediately upon receipt of the contract award documents from the DPMC, the Contractor shall notify all utility companies involved regarding utility services required for completion of the Work. Such notification shall be in addition to any notification requirements imposed by law, including, without limitation, the Underground Facility Protection Act, N.J.S.A. 48:2-73, et seq.

4.3.6 The Contractor shall perform all soil conservation measures in accordance with County Soil Conservation District requirements.

4.3.7 The Contractor shall perform all sewage disposal work in conformance with the regulations of the State's Department of Environmental Protection.

4.3.8 The Contractor shall be responsible for obtaining timely NJUCC inspections of the Work from the applicable State agency. The Contractor shall request such
inspections through DPMC authorized representatives allowing for sufficient notice to enable NJUCC inspections to be scheduled without delay to the Work.

4.3.9 Consistent with section 4.4 of these General Conditions, the Contractor shall be responsible for its own actions and protect, defend and indemnify the State from all fines, penalties or loss incurred for, or by reason of, the violation of any municipal ordinance or regulation or law of the State while the said work is in progress.

4.3.10 The Contractor shall comply with the Federal Occupational Safety and Health Act of 1970 and all of the rules and regulations promulgated there under.

4.3.11 If the Contractor causes a substantial violation of a State, local or federal statute or regulation on the Project, DPMC may declare the Contractor to be in default, and/or terminate the Contract.

4.3.12 Prior to the start of any crane equipment operations, the Contractor shall make all necessary applications and obtain all required permits from the Federal Aviation Administration (F.A.A.). When the F.A.A. has jurisdiction, the sequence of operations, timing and methods of conducting the Work shall be approved by the F.A.A.

4.3.13 The Contractor will establish an approved Silica Health and Safety Program when tasks generating crystalline silica dust are being performed. This program shall include engineering, work practice, and respiratory protection controls to reduce worker exposure to airborne respirable crystalline dust to levels that are as low as reasonably achievable. When tasks are performed that generate airborne crystalline dust, the Contractor will minimize worker exposure to dust by one, or a combination of the following methods: 1) dust suppression with water, 2) local exhaust ventilation to a high-efficiency dust collector, and/or 3) appropriate respiratory protection devices. The Contractor shall provide a trained, competent person, as defined by OSHA 29 CFR 1926, on site at all times to implement the Silica Health and Safety Program when tasks generating crystalline silica dust are being performed.

4.4 RESPONSIBILITY FOR THE WORK

4.4.1 The Contractor shall be responsible to the State and to any separate Contractors and/or consultants including, without limitation, the Architect/Engineer, for the acts, errors and omissions of its employees, Subcontractors and their agents and employees that injure, damage or delay such other Contractors and/or consultants in the performance of their work.

4.4.2 The Contractor shall be responsible for all damage or destruction caused directly or indirectly by its operations to all parts of the Work, both temporary and permanent, and to all adjoining property.

4.4.3 The Contractor shall, at its own expense, protect all finished work and keep the same protected until the Project (or identifiable portions thereof, that are declared as substantially complete and being used) is completed and accepted.

4.4.4 The Contractor shall be responsible for safety and for any damage or injury which may result from the Contractor's failure or improper construction, maintenance or operation.
4.4.5 In order to protect the lives and health of its employees, the Contractor shall comply with all applicable statutes and regulations and pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc. and shall maintain accurate records of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work arising out of and in the course of employment on work under the Contract. If a conflict should exist with the requirements of the Federal Occupational Safety and Health Act of 1970, then the most stringent statute or pertinent provision shall apply.

4.5 INDEMNIFICATION

4.5.1 The Contractor shall assume all risk of and responsibility for, and agrees to protect, defend and indemnify the State of New Jersey, its agents, and its employees, from and against, any and all claims, demands, suits, actions, recoveries, judgment and costs of expenses in connection therewith on account of the loss of life, property, injury or damage to the person, body or property of any person or persons whatsoever, resulting from the Contractor’s performance on the Project or through the use of any improper or defective machinery, implements or appliances, or through any act or omission on the part of the Contractor or its agents, employees or servants, which shall arise from or result directly or indirectly from the Work and/or materials supplied under this Contract. This indemnification obligation is not limited by, but is in addition to, the insurance obligations contained in this Contract.

4.5.2 In any and all claims against the State or any of its agents or employees, any employees of the Contractor or Subcontractor or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this section shall not be limited in any way as to the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under worker’s compensation acts, disability benefit acts, or other employee benefit acts.

4.6 SUPERVISION

4.6.1 The Contractor shall attentively supervise and direct the Work. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

4.6.2 The Contractor shall employ a full-time competent superintendent and necessary foremen and assistants, who shall be in attendance on the Project Site during the progress of the Work. The superintendent shall represent the Contractor, and all communications given to the superintendent shall be binding upon the Contractor. The State reserves the right to require a change in superintendent if the superintendent's performance, as judged by the DPMC, is deemed to be inadequate. Upon application in writing, and if deemed appropriate and expressly approved by the DPMC, the requirement for a full-time superintendent may be waived. If such a waiver is permitted, the Contractor shall employ a full-time competent foreman who shall be in attendance on the site during the progress of work and shall represent the Contractor, and all communications given to the foreman.
shall be binding upon the Contractor. The Contractor shall not employ persons unfit or unskilled in the assigned area of work.

4.6.3 The Contractor shall ensure that its Subcontractors shall likewise have competent superintendents in charge of their respective portions of the Work at all times. Upon application in writing, and if deemed appropriate and expressly approved by the DPMC, the requirement for a full-time superintendent may be waived. If such a waiver is permitted, the Subcontractor shall employ a full-time competent foreman who shall be in attendance on the site during the progress of work and shall represent the subcontractor, and all communications given to the foreman shall be binding upon the subcontractor. The Subcontractor shall not employ persons unfit or unskilled in the assigned area of work. If it becomes apparent that a Subcontractor does not have its portion of the Work under control of a competent foreman, the Contractor shall have the obligation to take appropriate steps to immediately provide proper supervision.

4.6.4 The Contractor shall employ qualified competent craftsmen in their respective lines of work. The State may require evidence that all employees have received sufficient training to execute the Work.

4.6.5 If, due to a trade agreement or project labor agreement, standby personnel are required to supervise equipment installation or for any other purpose during the normal working hours of other trades, the Contractor normally required to provide the standby services shall be deemed to have evaluated and included the costs thereof in its bid price and shall provide said services without additional charge.

4.6.6 The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ any unfit person or anyone not skilled in the task assigned.

4.7 SHOP DRAWINGS AND OTHER SUBMITTALS

4.7.1 The Contractor shall, within two weeks of the Notice to Proceed, submit to the Architect/Engineer, shop drawings and sample submission schedule for approval, which shall be used as a basis for complying with the overall progress schedule. The Contractor shall obtain, from its Subcontractor(s), all submittals including shop drawings, details, and schedules. The Contractor shall review the submittals for completeness and conformity with the Contract Documents, and shall stamp the submittals “approved”. The Contractor shall promptly forward two copies of each submittal in reproducible form to the Architect/Engineer, so as to cause no delay in its own work or that of any other contractor The DPMC Project number and the drawing and specification references shall be written or typed on all submissions. Failure to comply with these instructions will be sufficient reason to return the drawing to the Contractor without approval and any resulting delay in the Project shall be the sole responsibility of the Contractor.

4.7.2. The Architect/Engineer will review shop drawings and other submittals with reasonable promptness. The Contractor shall promptly make any corrections, if required by the Architect/Engineer, and resubmit a reproducible copy for approval. Within five (5) working days of final approval, the Contractor shall send the Architect/Engineer a
minimum of seven (7) prints of the finally approved shop drawings as well as seven (7) copies of all catalog cuts.

4.7.3 The Contractor shall prepare original shop drawings, and not simply copy the Contract Drawings for submission as shop drawings. All shop drawing sizes shall be in multiples of 9" x 12" (e.g., 18" x 24", 24" x 27", 24" x 36", etc.) as approved by the Architect/Engineer.

4.7.4 Any deviations or changes from the requirements of the Contract Documents, must be approved by the Architect/Engineer. A Contractor seeking approval for any deviations or changes must: a) make a written request for the proposed change; b) provide to the Architect/Engineer a detailed narrative description of the proposed change; c) highlight on the applicable drawing the proposed change; and d) furnish a detailed description of all potential impacts on the schedule and project budget.

4.7.5 Substitutions

4.7.5.1 Where any particular brand or manufactured article is specified, it shall be regarded as a standard. Similar products of other manufacturers, capable of equal performance and quality, may be accepted if approved by the Architect/Engineer and accepted by DPMC in writing.

4.7.5.2 In the event that a Contractor proposes a substitution to the specified equipment or materials, it shall be the Contractor’s responsibility to submit proof of equality and to provide and pay for any tests which may be required by the DPMC in order to evaluate the proposal. If there is a substantial cost savings between the substitution and the specified equipment or material, the difference will be returned to the State in the form of a credit Change Order.

4.7.5.3 The application for the approval of a substitution must be submitted on the State form within 10 days of Notice to Proceed. Further, the submission shall include the following requirements:

a. A Full and complete identification information;

b. The identification of the paragraph and section of the specifications for which the substitution is proposed. The attachment of data indicating in detail whether and how the equipment or material differs, if at all, from the article specified;

d. A detailed explanation of any effect the proposed substitution will have on the scope of the Work and a certification that the Contractor agrees to be responsible for any and all resulting added costs to its Work and to any additional costs incurred by the Architect/Engineer in time, labor and/or redesign of the Contract Documents;

e. The submission of documents that demonstrate proof of equality, along with an agreement to have such tests performed at the Contractor's own expense as may be required for approval by the DPMC and/or the Architect/Engineer. The Contractor shall be responsible for the cost of reviews by the Architect/Engineer of subsequent submissions of additional information.
4.7.5.4 No Contractor shall base a bid on a substitution that may have been approved on previous Projects. Bids shall be based solely on plans and specifications of this Project.

4.7.5.5 The Contractor shall not proceed with the purchase or installation of a substitution without the written approval of DPMC. Any such installation may result in the assessment of costs for its removal at the Contractor’s expense, and/or other damages and/or termination of the Contract for default.

4.7.6 Additional Submissions

4.7.6.1 Samples: The Contractor shall furnish, for approval, all required samples. Such samples shall be submitted in accordance with the shop drawing and sample submittal schedule. All work must be installed in accordance with approved samples.

4.7.6.2 Utility Service Connections: With respect to plumbing, fire-protection, HVAC, electrical and other machinery and mechanical equipment items requiring utility service connections, the Contractor must submit the respective shop drawings with the manufacturer’s certified rough-in drawings, indicating accurate locations and sizes of all service utility connections.

4.7.6.3 Sleeve and Opening Drawings: Prior to installing service utilities or other piping, through structural elements of the building, the Contractor shall prepare and submit, for approval by the Architect/Engineer, accurate dimensional drawings indicating the positions and sizes of all sleeves and openings required to accommodate the Work and installation of the Contractor's piping, equipment, etc. All such drawings must contain reference to the established dimensional grid of the building. Such drawings must be submitted in accordance with the approved shop drawing and sample submission schedule.

4.7.6.4 Control Valve and Circuit Location Charts and Diagrams: For all plumbing, fire-protection, HVAC and electrical work, the Contractor shall prepare a complete set of inked or typewritten control valve and circuit location diagrams, charts and lists identifying and locating all such items, and shall place the charts, diagrams and lists under frame glass in designated equipment rooms. The Contractor shall also furnish one-line diagrams, as well as such color-coding of piping, wiring and other necessary identifications as specified or required. This information is to be framed under glass and displayed where directed.

4.7.6.5 Coordination Drawings: The Contractor shall create and update a complete, composite set of Coordination Drawings. The purpose of these drawings is to identify coordination and interference problems prior to installation. Coordination Drawings are required for all equipment rooms, above ceiling spaces, shared chases, and other areas where the Work of two or more trades is to be installed. The drawings shall be drawn to a scale not smaller than 1/4"=1'-0" (30"x42" sheet size) and shall show clearly in both plan and elevation that all Work can be installed without interference. At a minimum these drawings shall indicate:

a. The interrelationship of equipment and systems;

b. Required installation sequences;
c. Equipment foundations and pads, equipment, piping, conduits, racks, ductwork, insulation, panels, control centers, sprinkler and fire protection systems etc. and required clearances.

The Contractor shall prepare the coordination drawings based on the submitted shop drawings and Contract Documents. The Contractor shall prepare, submit and receive approvals for the Coordination Drawings before any sleeves or inserts are set, any floor openings are core drilled, or any equipment, equipment foundations, or related work is installed. The cost of preparing approved Coordination Drawings shall be included in the Contractor's price. DPMC may require the Contractor to identify Coordination Drawings as an item within the Schedule of Values, and incorporate them into in the Project schedule.

4.8 AS-BUILT DRAWINGS

4.8.1 The Contractor and each Subcontractor shall maintain on the Project Site at all times one set of drawings to be marked "AS-BUILT." The DPMC has the right to rely on accuracy of the “as-built” drawings provided by the Contractor. During the course of the Project, the Contractor shall mark these drawings with colored pencils to reflect any changes, as well as the dimension and the location of all pipe runs, conduits, traps, sprinkler and fire protection lines, footing depths or any other information not already shown on the drawings or differing therefrom. All buried utilities outside the building shall be located by a survey performed by a licensed surveyor who shall certify as to its accuracy. These marked-up drawings and surveys shall remain current and shall be made available to the DPMC or Architect/Engineer at all times during the progress of the Work.

4.8.2 In instances where shop drawings and/or erection drawings, of a scale larger than the Contract Drawings, are prepared by the Contractor, such drawings may be acceptable “as-built” drawings provided they are updated. A master sheet of the same dimensions as the Contract Drawings shall be prepared by the Contractor that shall indicate, sheet by sheet, a cross-reference to all shop drawings pertaining to that drawing.

4.8.3 The Contractor shall submit the "as-built" documents to the Architect/Engineer with a certification as to the accuracy of the information thereon at the time of Contract completion and before final payment will be made to the Contractor. After acceptance by the Architect/Engineer, the Contractor will furnish two sets of all shop drawings used for "as-built" documentation.

4.8.4 All "as-built" drawings as submitted by Contractors shall be dated and labeled "AS-BUILT" above the title block. This information shall be checked, edited and certified by the Architect/Engineer, who will then transpose such information from the Contractor's "as-built" drawings to the original drawings. Where shop drawings have been used by the Contractor for "as-built" documentation, the master sheet providing cross reference information, as described in section 4.8.2, shall be included in the set of "as-built" drawings furnished to DPMC.
4.9 EXCAVATIONS, CUTTING AND PATCHING

4.9.1 Soil borings, test pits or other subsurface information may be secured by an independent Contractor retained by the State prior to design and construction of the Project and, if obtained, may be included in the Contract Documents for the Contractor's use. The Contractor assumes full responsibility for interpretation of said information.

4.9.2 The Contractor shall be responsible for furnishing and setting of sleeves, built-in items, anchors, inserts, and other necessary materials for its work and for all cutting, fitting, closing in, patching, finishing, or adjusting of its work in new and/or existing construction, as required for the completed installation.

4.9.3 Approval in writing from the DPMC and the Architect/Engineer must first be obtained by the Contractor before cutting or boring through any roof, floor beams, floor construction or structural members.

4.10 TESTING

4.10.1 The Contractor shall notify the DPMC in writing of all work required to be inspected or tested. The notice shall be provided no later than five working days prior to the scheduled inspection or test. The Contractor shall bear all costs of such inspections or tests, except for Code inspections as stated in section 4.3 of this document.

4.10.2 When mechanical, electrical or other equipment is installed, it shall be the responsibility of the installing Contractor to maintain, warrant and operate it for such period of time as required by the Contract Documents or as necessary for the proper inspection and testing of the equipment and for adequately instructing the State's operating personnel. All costs associated with the maintenance, warranty, operations, inspection and testing of equipment, as well as instructing State personnel, shall be borne by the Contractor installing the equipment. All tests shall be conducted in the presence of, and upon timely notice to, the DPMC, prior to acceptance of the equipment.

4.10.3 DPMC shall have the authority to direct in writing that special or additional inspections or tests be performed. The Contractor shall comply and give notice as detailed above.

4.10.4 In the event such special or additional inspections or testing reveal a failure of the Work to comply with the terms and conditions of the Contract, the Contractor shall bear all costs thereof, including all costs incurred by the State made necessary by such failures.

4.10.5 The Contractor shall utilize inspection or testing from those firms/entities pre-qualified by DPMC. Failure to use a firm/entity pre-qualified by DPMC shall be grounds for rejection of the inspection or test as non-conforming.

4.10.6 All submittals of inspections, test reports or requests for approval shall be accompanied by a certification signed by the Contractor, attesting to: the Contractor's knowledge of the submittal; acceptance of its findings; acknowledgment that material testing meets the required standards; and a certification of the report's representation of
the facts. Failure to provide the written certification shall be grounds for rejection of the submittal.

4.10.7 The Contractor shall ensure that a copy of the inspection report is transmitted directly to the Architect/Engineer and the DPMC. The Contractor shall ensure that it includes in all of its subcontracts and purchase orders for inspection and testing, the requirement for the inspection or testing firm/entity to submit a copy of the report directly to the DPMC representative. The Contractor shall ensure that all such reports are submitted within fourteen (14) calendar days of the test or inspection.

4.10.8 In addition to tests performed by the Contractor, the State reserves the right to engage an independent testing agency or firm to perform testing inspections. The Contractor shall provide full access, provide samples, and cooperate fully with this testing agency.

4.10.9 Testing requirements for real property installed equipment (RPIE) to be furnished by the Contractor, when such testing is required by Code, Contract, or the manufacturer, shall be performed by a testing laboratory pre-qualified by DPMC, or in the absence of such, by the manufacturer or its authorized representative. The Contractor shall provide five working days’ notice to the DPMC representative, to allow sufficient opportunity to witness the test.

4.10.10 The DPMC may order that any part of the Work be re-examined by the DPMC, and if so ordered, the Contractor shall open or uncover such work for re-inspection by the DPMC. If such work is found to be in accordance with the Contract, the DPMC shall pay the cost of re-inspection; however, if such work is not found to be in accordance with the Contract, the Contractor shall be responsible for the cost of re-inspection and replacement of any defective or non-conforming work.

4.11 EQUIPMENT AND MATERIALS

4.11.1 The Contractor warrants that all materials and equipment furnished under the Contract will be new, unless otherwise specified, and that all work will be of good quality, free from faults, defects, and installed in conformance with the Contract Documents. All work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and rejected by the DPMC or the Architect/Engineer. If required by the Architect/Engineer or the DPMC, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall be in addition to but not in lieu of any other warranty or guarantee provided for in the Contract.

4.11.2 The Contractor shall submit to the Architect/Engineer an original and six copies of the request for approval of materials on the form provided by DPMC for approval. Each item of material listed shall be marked "As Specified", “Substitution” or "Unspecified" as appropriate.

4.11.3 The Contractor shall furnish and deliver the necessary equipment and materials in ample quantities and as frequently as required to avoid delay in the progress of the Work and shall store them so as not to cause interference with the orderly progress of the Project.
4.11.4 The Contractor shall furnish and pay for all necessary transportation, storage, scaffolding, centering, forms, water, labor, tools, light and power and mechanical appliances and all other means, materials and supplies for properly executing the Work under this Contract, unless expressly specified otherwise in the Contract Documents. The Contractor shall have its representatives at the Site to accept delivered materials. State agencies employees and/or representatives will not accept materials, nor will State agency employees and/or representatives be responsible for damage, theft, or disappearance of the Contractor's materials, equipment, tools, or other property.

4.11.5 Products manufactured in the United States shall be used in this work, whenever available. Wherever practicable, preference shall be given at all times to material and equipment manufactured or produced in the State of New Jersey, where such preference is reasonable and will best serve the interest of the State.

4.11.6 No materials, equipment, or supplies for the Work shall be purchased by the Contractor subject to any lien or encumbrance or other agreement by which an interest is retained by the seller. This clause shall be a condition included in all agreements between the Contractor and its Subcontractors. The Contractor warrants, by signing its invoice, that it has good and sufficient title to all such material, equipment and supplies used by it in the Work, free from all liens, claims or encumbrances.

4.12 TEMPORARY FACILITIES

The Contractor shall be responsible for providing for its own storage areas, employee vehicular parking and staging areas, excavation borrow/spoils designated areas, commercial canteen areas, and all other areas necessary for use by the Contractor. The Contractor shall locate these areas to suit Project requirements, subject to DPMC approval.

4.12.1 Field Offices - The Contractor will provide and maintain during the contract duration an on-Site suitable weather-tight insulated field office conveniently located, and shall maintain therein a complete set of Contract Documents including plans, specifications, CPM network diagrams, Change Orders, logs and other details and Project correspondence. Subject to the DPMC’s written approval and at a date designated by DPMC, the field office may be removed upon enclosure of the building and space may be allocated for field offices within the building. The contents and operations will be transferred to the interior of the Project building by the Contractor, and said office(s) shall be maintained by the Contractor until final acceptance or until the DPMC approves its removal. The Contractor will be responsible to obtain and pay for all permits required for the Contractor’s field offices.

4.12.2 Telephones - The Contractor shall provide its own telephones. The State will be responsible only for the cost of calls made by State employees. if there is a documented cost for same.

4.12.3 Storage - The Contractor will provide and maintain, for its own use suitable and safe temporary storage, tool shops, and employees' sheds for proper protection, storage work and shelter. The Contractor shall maintain these structures properly and remove the structures at the completion of work. The Contractor shall be responsible to maintain
these facilities and the areas around the facilities in a clear and clean manner. The Contractor shall be responsible for correcting defects and damage caused by such use. Rooms in buildings at the Project Site may be used as shops and storerooms, conditioned upon written approval from DPMC.

4.12.4 Toilet Facilities

a. The Contractor shall provide and pay for suitable temporary toilets at an approved location on the Site and prior to the start of any field work. The toilet facilities shall comply with federal, State and local laws and regulations. The Contractor will be responsible for maintenance, removal and relocation as described hereinafter.

b. The Contractor shall provide a temporary toilet and/or indoor toilet connected to water and sewer to accommodate the meeting room and the Architect/Engineer's office, as well as the DPMC office.

c. Toilets shall be serviced by a qualified and experienced firm authorized to maintain services.

d. Each portable toilet facility shall be maintained in a neat and clean condition and serviced at least twice a week, including the removal of waste matter, sterilizing, recharging tank, refilling tissue holders, and thoroughly cleaning and scrubbing entire interior.

e. Toilet facilities in a multiple-story building shall be located on no less than every other floor, unless otherwise directed.

f. Toilet service shall be relocated inside the building and connected to water and sewer as the progress of the Work will allow.

g. When temporary toilets are connected to water and sewer lines, precautions shall be taken to prevent freezing.

h. The Contractor shall remove the temporary toilet units from the Work Site at the completion of the Work, or when so directed by the DPMC or the Architect/Engineer.

i. Workers are not to use the finished bathroom and toilet facilities in the Project buildings. Reasonable steps must be taken by the Contractor to enforce this rule.

4.12.5 Access, Roads and Walks

a. The Contractor shall be responsible for providing and maintaining unobstructed traffic lanes on the designated construction access routes shown on the Contract Drawings or as reasonably required so as to perform the Work. The Contractor shall provide and maintain all reasonably required safety devices. The Contractor shall provide any necessary additional materials, grading and compaction, and shall remove snow and debris as necessary to provide and maintain the access roadbed and pedestrian ways in serviceable condition.

b. The Contractor shall be responsible for constructing and maintaining all roadways, drives and parking areas within or proximate to the Site free and clear.
of debris, gravel, mud, snow, ice, or any other Site materials, by ensuring that all reasonably necessary measures are taken to prevent such materials from being deposited on such surfaces. This includes, as may be appropriate, the cleaning of vehicle wheels and/or other necessary maintenance, prior to exit from the Construction Site. Should such surface require cleaning, the Contractor will clean these surfaces without additional cost to the State. The Contractor will be held accountable for any citations, fines, or penalties imposed on the State for failing to comply with local rules and regulations related to Site and off-Site maintenance.

c. The Contractor shall not commence final construction of permanent driveways, parking areas or walks without the written approval of the DPMC. The Contractor shall provide additional materials and labor for maintaining and reworking the sub-grade prior to completion of the Work, to ensure improvements conform fully to the specifications.

d. The Contractor shall obtain written permission from the State for the use of any existing driveways or parking areas not specifically designated for such use in the Contract Documents. If permission is granted, the Contractor shall maintain such driveways and areas in good condition during the construction period, and at the completion of the Project, shall leave them in the same or better condition as at the start of the Work. Conditions before use shall be carefully photographed and documented by the Contractor.

4.12.6 Light and Power

a. The Contractor shall extend electrical service to the building or buildings at locations approved by the DPMC. Temporary electrical service shall be independent of the existing permanent service. Initial temporary service shall be three phase or single phase as indicated in the Contract Documents. The Contractor is responsible to investigate and verify the appropriateness and availability of electrical service with the local utility company prior to the bid date. The Contractor’s bid shall be deemed to include all costs associated with providing this power. Temporary light and power installations, wiring, and miscellaneous electrical hardware must meet the electrical Code and will be inspected by NJUCC officials. The Contractor shall provide the necessary distributing facilities and a meter, and shall pay the cost of running temporary services from the nearest utility company power pole. All costs shall be included in the Contractor's bid.

b. In the event that a water well is the source of water supply for the Project, the extension of electrical service shall include the necessary wiring of sufficient capacity to the location of the well for the operation of the well pump. Where service of a type other than herein mentioned is required, the Contractor requiring it shall install and pay all costs of such special service. The size and incoming service and main distribution switch and panel shall be sized as any service by NEC requirements.

c. The Contractor shall provide all electrical service for the operation of elevator equipment during construction.
d. The Contractor shall pay for the cost of all electric energy used on distribution lines installed.

e. The Contractor shall provide and pay for all maintenance, servicing, operation and supervision of the service and distribution facilities.

f. If the Contractor fails to carry out its responsibility in the supplying uninterrupted light and power as set forth herein, the Contractor shall be held responsible for such failure, and the DPMC shall have the right to take such action as is deemed proper for the protection and conduct of the Work. Any costs associated with DPMC obtaining or supplying light and power shall be deducted from any payment due to the Contractor.

g. The Contractor shall comply with the requirements of the Federal Occupational Safety and Health Act of 1970 with regard to temporary light and power.

4.12.7 Temporary Enclosures

Whenever necessary in order to maintain proper temperatures for the execution or protection of the Work, the Contractor shall furnish and maintain temporary enclosures for all openings in exterior walls that are not enclosed with finished materials. Temporary wood doors shall be provided at door openings.

4.12.8 Temporary Heating, Ventilation and Air Conditioning

a. Prior to Enclosure - Prior to the building being enclosed by walls and roof, if the outside temperatures falls below 45 degrees Fahrenheit ("F") at any time during the day or night, and heat is required for work in progress or for its protection or curing, the Contractor shall furnish, at its expense, acceptable means to provide sufficient temporary heat to maintain a temperature required by the Work being performed but in no case less than 45 degrees F.

b. Generally Enclosed

(1) For the purposes of establishing the beginning of the Contractor's obligation to provide temporary heat, a building or major unit thereof shall be considered generally enclosed when (a) the exterior walls have been erected, (b) a temporary roof or permanent roof is installed and in a watertight condition, and (c) temporary or permanent doors are hung and window openings are closed with either permanent or temporary weather-tight enclosures. A major unit of buildings as referred to herein shall be: (a) an entire separate structure, or (b) a fully enclosed wing which shall have a floor area equal to at least 50% (fifty percent) of the total floor area of the Project.

(2) As soon as the DPMC determines that the building, or a major unit thereof, is "generally enclosed" by walls and roof, and when the outside temperature falls below 55 degrees F. at any time during the day or night, the Contractor shall furnish sufficient heat by the use and maintenance of LP gas heaters or other acceptable means to maintain a temperature of not less than 55 degrees F. within the enclosed area of the building at all
times, and shall remove such heaters when no longer required. The Contractor will be held responsible for providing temporary heat and for all damages resulting from freeze-ups, for the duration of the Project from the time the building is generally enclosed to final acceptance and occupancy. The Contractor shall remove soot, smudges, and other deposits from walls, ceilings, and all exposed surfaces which are the result of the use of heating equipment, including the permanent heating system, during the period of its use for supplying heat. The Contractor shall not do any finish work until the areas are properly cleaned. The Contractor shall provide or arrange, at its own expense, supervision of the heating equipment at all times prior to providing heat, using the permanent heating system. This obligation shall commence immediately after the acknowledged permanent enclosure of the building or buildings, as confirmed by the DPMC. The Contractor shall furnish and pay for all fuel for heat required during the period when the building is generally or permanently enclosed.

(3) The Contractor shall not assume that the permanent heating system or any part thereof will be available for furnishing of temporary heat during the period for which temporary heat is required. The Contractor's base bid price shall therefore include the cost of all equipment necessary for providing temporary heat as required by the Contract Documents. The Contractor may use the permanent heating system, with written approval from DPMC. Such use however does not cause to commence the equipment’s warranties and guarantees. The equipment’s warranties and guarantees shall not commence to run until the State takes beneficial use of the Project and facility for the purposes intended.

(4) All heating equipment shall be NFPA-approved and connected to approved flues to the atmosphere. Heaters shall be approved by a recognized testing laboratory and must be equipped with a positive shut-off safety valve.

(5) Storage of gas cylinders within the building will not be permitted at any time.

(6) The Contractor shall provide fire extinguishers on each floor where heaters are used, and the areas must be adequately ventilated.

c. Permanent Enclosure

(1) When the building enclosure has been confirmed by the Architect/Engineer has been completed in accordance with the Contract Documents, and to the satisfaction of DPMC, it shall be considered permanently enclosed. The Architect/Engineer will also confirm in the job meeting minutes that the building, or a major unit thereof, is permanently enclosed.

(3) The Contractor shall install adequate controls to make such temporary connection as required for the operation of the HVAC system.
Should the heating system be designed for the tie-in to existing steam lines for resource of heat, the State will provide steam for temporary heat through the Project permanent heating system, at no cost to the Contractor, after the tie-in is completed by the Contractor.

(4) When the building enclosure has been confirmed by the A/E as completed, the Contractor may request permission to operate the permanent HVAC system to meet its temporary HVAC obligation. The Contractor shall maintain a minimum temperature of 55 degrees F., or a higher temperature, not to exceed 75 degrees F., as may be directed by the Contract Documents for the proper conduct and protection of the Work. The Contractor shall do so until such time as its work is completed and accepted and the Contractor is relieved of this requirement in writing by the DPMC. The Contractor shall pay for and be responsible for the maintenance in accordance with the manufacturer’s recommendations, operation and supervision of the HVAC system, including the cost of all water, electricity, and fuel, until the State assumes beneficial occupancy/use of the Project.

4.12.10 Temporary Water

a. The Contractor shall provide, protect and maintain an adequate valved water supply. If the source of water supply is a well, provisions covering the supply water will include the installation of necessary power-driven pumping facilities. The well shall be protected against contamination. The water supply shall be tested periodically by the Contractor, and if necessary, shall be chlorinated and filtered. All costs of providing water will be paid for by the Contractor.

b. The Contractor is responsible to protect all temporary and permanent water lines from damage or freezing. Should water connections be made to an existing line, the Contractor shall provide a positive shut-off valve at its own cost and expense.

4.12.11 Standby Personnel

If, pursuant to trade agreement to which the Contractor is a party, the Contractor is obligated, to employ standby personnel then the Contractor shall determine and include all such costs thereof in its bid proposal. The Contractor shall not, at any time, make a claim to the State for costs relating to standby maintenance or standby supervision for electric motor-driven or other equipment.

4.12.12 Dust Control

a. The Contractor shall provide and maintain necessary temporary dust-proof partitions around areas of Work in any existing building or in new building areas as directed by the Architect/Engineer or the DPMC.

b. The Contractor shall provide and maintain Site dust control of Projects with on-Site construction as directed by the Architect/Engineer or the DPMC.
4.13 STORAGE AND SITE MAINTENANCE

4.13.1 The Contractor shall confine its apparatus, the storage of its equipment, tools and materials, and its operations and workers to areas permitted by law, ordinances, permits, and Contract as set forth in the Contract Documents, the rules and regulations of the State, or as ordered by the DPMC. The Contractor shall not unreasonably encumber the Site or the premises with materials, tools and equipment.

4.13.2 The Contractor shall, at all times during the progress of the Work keep the premises and the job Site free from the accumulation of all refuse, rubbish, scrap materials and debris caused by its operations and/or the actions of its employees, Subcontractors and/or workers, to ensure that, at all times, the premises and Site shall present a neat, orderly and workmanlike appearance. This is to be accomplished as frequently as is necessary by the removal of such refuse, rubbish, scrap materials and debris from the Site and the State's premises. Loading, cartage, hauling and dumping of same will be at the Contractor's expense.

4.13.3 At the completion of the Work, the Contractor shall remove all of its tools, construction equipment, machinery, temporary staging, false work, mock-ups, form work, shoring, bracing, protective enclosures, scaffolding, stairs, chutes, ramps, runways, hoisting equipment, elevators, derricks, cranes, and any other materials and equipment brought onto the Project Site.

4.13.4 Should the Contractor not promptly and properly discharge its obligation relating to Site maintenance and/or final clean up, the State shall have the right to employ others and to charge the resulting cost to the Contractor after first having given the Contractor a three-working day written notice of such intent.

4.13.5 The Contractor's responsibilities for final clean up shall include:
   
   a. Removal of all debris and rubbish resulting from or relating to the Contractor's work. Rubbish shall not be thrown from building openings above the ground floor unless contained within chutes.
   
   b. Removal of stains from glass and mirrors. Glass shall be washed and polished inside and outside.
   
   c. Removal of marks, stains, fingerprints, soil, dust or dirt from painted, decorated or stained woodwork, plaster or plasterboard, metal acoustic tile and equipment surfaces.
   
   d. Removal of spots, paint and soil from resilient, glazed and unglazed masonry and ceramic flooring and wall work.
   
   e. Removal of temporary floor protections; and cleaning, washing or otherwise treating and/or polishing, as directed, all finished floors.
   
   f. Cleaning of exterior and interior metal surfaces, including doors, window frames and hardware, of oil stains, dust, dirt, paint, etc. Polishing and removal of fingerprints or blemishes from such surfaces shall be completed, as applicable.
g. Restoration of all landscaping, roadways and walkways to preexisting condition. Damage to trees and plantings shall be repaired in the next planting season, and such shall be guaranteed for one year from the date of repair and/or replanting.

4.13.6 All construction equipment, materials and/or supplies of any kind, character or description, regardless of value, which remain on the job Site for more than 30 (thirty) calendar days from the date of the Certificate of Final Acceptance, shall become the property of the State. Such construction equipment, materials and/or supplies will be disposed of in any manner the State shall deem reasonable and proper. The cost of this disposal will be deducted from any sums due the Contractor. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the State.

4.14 CUT-OVERS AND INTERRUPTIONS

All cut-overs of mechanical and electrical services to existing buildings shall be approved, scheduled and coordinated in advance with the DPMC's representative and performed at a time convenient to the occupants of said buildings so as not to unreasonably interfere with its operations.

4.15 PROTECTION/SAFETY

4.15.1 Safety Precautions and Programs – The Contractor shall be responsible for initiating, maintaining and supervising all required safety precautions and programs in connection with the Work. The Contractor shall designate a responsible member of its organization at the Site whose duty shall be the prevention of accidents. This person shall be competent to review, implement and coordinate the safety programs being performed as required by Occupational Safety and Health Administration (OSHA) or any other agency having authority over safety on a State Construction Site.

4.15.2 Protection of Persons

a. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

(1) Every employee on the Site and all other persons who may be affected thereby;

(2) All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody or control of the Contractor, or any of its Subcontractor(s) or lower tier sub-Subcontractor(s); and

(3) Other property at the Site or adjacent thereto (whether owned by the State or not), including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
b. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

c. The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including but not limited to rails, night-lights, aircraft warning lights, the posting of danger signs and other warnings against hazards, promulgating safety regulations, notifying Owners and users of adjacent utilities and other means of protection against accidental injury or damage to persons and property.

d. The Contractor shall not load or permit any part of the Work to be loaded so as to endanger the safety of the project, its employees, or any other person on the project Site.

e. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, any of its Subcontractors, lower tier Subcontractors, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible. These obligations are in addition to those stated elsewhere herein.

4.15.3 Protection of Property

The Contractor shall have full responsibility to install, protect, and maintain all materials and supplies in proper condition whether in storage or off the site and to immediately repair and/or replace any such damage until Final Acceptance. The Contractor shall maintain an inventory of all materials and supplies for the Work at the Site, that are delivered to the site, or delivered to approved off-site storage facilities. The State shall not be liable for any damage, theft or negligent injury to the Contractor's property.

4.15.4 Hazardous Materials

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

b. The Contractor shall maintain all records, reports and files of the general storage and handling of hazardous materials as required by any and all federal, State and/or local regulatory agencies.

4.16 Emergencies

In any emergency affecting the safety of persons or property, the Contractor shall act with diligence to prevent threatening injury, damage or loss. In such case, the Contractor shall immediately, but in no case, not more than 24-hours following the emergency, notify the DPMC and the Architect/Engineer of the action taken.

4.16 UNCOVERING AND CORRECTION OF WORK

4.16.1 Uncovering of Work
a. The Contractor is obligated to provide reasonable notice to the DPMC and/or the Architect/Engineer of all work scheduled to be covered, to permit DPMC and the Architect/Engineer the opportunity to inspect the Work prior to actual covering. If any portion of the Work is covered prior to inspection by the DPMC or the Architect/Engineer, it shall be uncovered for observation. Uncovering and replacement of the covering shall be at the Contractor's expense.

b. The DPMC and/or the Architect/Engineer may request any work be uncovered by the Contractor for inspection. If such work is found to be in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be reimbursed to the Contractor. If such work is found not to be in accordance with the Contract Documents, the Contractor shall pay all associated costs.

4.16.2 Correction of Work

a. The Contractor shall promptly correct all work rejected by the DPMC or the Architect/Engineer as defective or failing to conform to the Contract Documents, whether observed before or after final acceptance and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected work, including the costs of all consultant services including but not limited to the Architect/Engineer's additional services.

b. The Contractor shall remove from the site, at its own expense, all portions of the Work which are defective or non-conforming and which have not been corrected, unless removal is waived by the DPMC.

c. If the Contractor fails to correct defective or non-conforming work in a reasonable time fixed by written notice from DPMC, then DPMC may make arrangements for such correction by others and charge the cost of so doing to the Contractor.

d. If the Contractor does not proceed with the removal and correction of such defective or non-conforming work within a reasonable time, fixed by written notice from the DPMC or the Architect/Engineer, any materials or equipment shall become the property of the State and the DPMC may remove and dispose the non-conforming work in any manner to best meet the interest of the State. If such material is sold and the proceeds of the sale do not cover all costs which the Contractor should have borne and any additional cost incurred by the State in the uncovering, removal, disposal and correction of non-conforming work, the difference shall be charged to the Contractor and an appropriate credit Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the State.

e. The Contractor shall be responsible for the cost of making good all work destroyed or damaged by such correction or removal.
f. Notwithstanding other obligations within the Contract Documents, nothing contained herein shall be construed to establish a time or date limitation upon which the DPMC must discover non-conforming work.

4.16.3 Acceptance of Non-Conforming Work

The DPMC may determine that the best interests of the State will be served by accepting defective or non-conforming work instead of requiring its removal and correction. In such instance, the DPMC may, by any means available, exact an appropriate reduction in the Contract sum. Such adjustment shall be effected regardless of final payment having previously been made, and the Contractor and/or its surety shall be responsible for promptly remitting any funds due the State as a result thereof.

4.17 LAYOUT AND DIMENSIONAL CONTROL

4.17.1 The Contractor shall be responsible for locating and laying out the building and all of its parts on the site, in strict accordance with the Contract Documents, and shall accurately establish and maintain dimensional control. The Contractor shall employ and pay for the services of a competent and licensed New Jersey engineer or land surveyor who shall be pre-qualified by DPMC to perform all layout work, and to test the level of excavations, footing base plates, columns, walls and floor and roof lines, and furnish to the Architect/Engineer, as the Work progresses, certifications that each of such levels is as required by the drawings. The plumb lines of walls, shall be tested and certified by the surveyor as the Work progresses.

4.17.2 The Contractor’s engineer/surveyor, in the course of layout work either on the site or within any building, shall establish all points, lines, elevations, grades and bench marks for proper control and execution of the Work. The Contractor’s engineer/surveyor shall establish a single permanent benchmark as set forth in the Contract Documents to which all three coordinates of dimensional control shall be referenced. The Contractor’s engineer/surveyor shall verify all Owner-furnished survey data including but not limited to topographical and utility location points, lines, elevations, grades and benchmarks, and buildings. Should any discrepancies be found between information given on the Contract Documents and the actual site or field conditions, the Contractor shall notify DPMC and the Architect/Engineer in writing of such discrepancy, and shall not proceed with any work affected until receipt of written instructions from the DPMC.

4.18 PROJECT SIGN

The Contractor shall erect and maintain one sign at the Project Site, as set forth in the Contract Documents and located as directed by the Architect/Engineer. Painting shall be done by a professional sign painter, with two coats of exterior paint, colors, letter face and layout as shown. No other sign will be permitted at the site. Upon completion of the Project, and when directed by the Architect/Engineer or the DPMC, the Contractor shall remove the sign.

4.19 SECURITY
4.19.1 The Contractor shall provide all locks, doors and security construction and personnel as required to secure the Project building throughout the period of construction.

4.19.2 The Contractor shall be responsible for the security of any temporary structures located on the premises outside of the building and/or any stored materials.

4.20 DPMC FIELD OFFICE

4.20.1 The Contractor will provide on-site, suitable, separate, weather-tight, insulated (floor, walls, ceilings) field office facilities for the use of DPMC personnel, as more fully described in the Contract Documents. At a minimum, the Contractor is to supply this field office with toilet facilities, heating and air conditioning, tables and chairs, and phone and data communication lines. At a time determined by the DPMC or the Architect/Engineer, the Contractor shall remove field facilities upon enclosure of the Project building and shall relocate the contents and operations of the field office to the interior of the Project building until completion of the Project.

4.20.2 The Contractor shall be responsible for the maintenance of both offices and the meeting room, including the cost of heating, air conditioning, electric current, and janitorial service.

4.21 PHOTOGRAPHS

4.21.1 The Contractor shall submit monthly progress photographs in duplicate to the DPMC, giving six (6) views of the Work with each application for payment until the Project is completed.

4.21.2 The photographs shall be 8" by 10" shall bear the date and time of the exposure, the DPMC Project number and title, the names of the Contractor and the name of the Architect/Engineer. All photographs shall also be submitted in digital format.

4.22 REPAIR OF FINISHED SURFACES, APPLIED FINISHES, GLASS

4.22.1 The Contractor accepts sole responsibility for repair of uncontrolled dislodging, cracking, delaminating or peeling of finished surfaces such as concrete, pre-cast concrete, cast and natural stone, unit masonry, millwork, plaster, glass and applied finishes such as compound, paint, and special coatings, within the Contract Work and the limits of specified guarantee periods, regardless of the cause.

4.22.2 The Contractor shall be responsible for replacement of all broken glass, regardless of the cause. The Contractor shall replace all broken, scratched or otherwise damaged glass before the completion and acceptance of the Work. If breakage is caused by the Owner, the Contractor will be reimbursed for the replacement costs. The Contractor shall wash all glass on both sides at completion, or when directed, removing all paint spots, stains, plaster, and other materials.
ARTICLE 5 - SUBCONTRACTORS

5.1 SUBCONTRACTORS AND MATERIAL SUPPLIER APPROVALS

5.1.1 Upon their execution, but not less than fourteen (14) calendar days prior to Subcontractor mobilization on the site, and/or Subcontractor billing, the Contractor shall forward to the Architect/Engineer on the form provided by the DPMC the names of all its Subcontractors and suppliers, of such others as the DPMC may direct, proposed to perform the principal parts of the Work. The Contractor shall forward the appropriate DPMC form to the Architect/Engineer for approval. Department of Labor Contractor Registration and New Jersey Business Registration Certificate are required for all Subcontractors.

5.1.2 If the DPMC has objection to any proposed or approved Subcontractor and/or material supplier, the Contractor shall substitute another Subcontractor and/or material supplier acceptable to DPMC. Under no circumstances shall the State be obligated for additional cost due to such substitution.

5.1.3 After the acceptance of bids, the Contractor shall make no substitution of any Subcontractor person or firm previously selected and approved, without prior written approval from the Architect/Engineer and DPMC. A Contractor seeking to substitute a Subcontractor person or firm shall provide written request for substitution no less than fourteen (14) calendar days prior to the execution of Work by the Subcontractor or material supplier.

5.1.4 Approval of a Subcontractor or material supplier by the DPMC and Architect/Engineer shall not relieve the Contractor of the responsibility of complying with all provisions of the Contract Documents. The approval of a Subcontractor or material supplier does not imply approval of any construction, material, equipment or supplies.

5.2 CONTRACTOR-SUBCONTRACTOR RELATIONSHIP

5.2.1 The Contractor acknowledges its full responsibility to the State for the acts and omissions of its Subcontractors and lower tier subcontractors, and of persons and firms either directly or indirectly employed by them, equally to the extent that the Contractor is responsible for the acts and omissions of persons and firms directly or indirectly employed by it. The Contractor acknowledges that it remains fully responsible for the proper performance of its Contract regardless of whether work is performed by the Contractor's own forces or by Subcontractors engaged by the Contractor.

5.2.2 Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the State. Further, no Subcontractor or material supplier shall be deemed an intended third party beneficiary under this Contract.

5.2.3 The Contractor and all Subcontractors agree that, in the employment of both skilled and unskilled labor, preference shall be given to residents of the State of New Jersey, if such labor force is available.
5.2.4 The Contractor shall require, in its agreements with Subcontractors and as a condition of agreement, that each Subcontractor require in its agreement(s) with lower tier Subcontractors and Suppliers, that the Subcontractor understands that there is no contractual obligation of any kind between the State and Subcontractor and the Subcontractor’s sole recourse lies with the Contractor and/or the surety, and not with the State, that each Subcontractor and lower tier Subcontractor, bound by the terms of the Contract Documents for this Contract, and assume toward the Contractor all the obligations and responsibilities which the Contractor assumes, pursuant to the Contract Documents.
ARTICLE 6 - CONSTRUCTION PROGRESS SCHEDULE

6.1 GENERAL

The State may contract for the services of a Critical Path Method (CPM) scheduling consultant for Project planning, scheduling and cost control. If such has been arranged, then section 6.2 shall apply to the Contract between the State and the Contractor. In the absence of a statement in the bid documents that a CPM consultant has been retained by the State, then section 6.3 shall apply.

6.2 CONSTRUCTION PROGRESS SCHEDULE (CRITICAL PATH METHOD -- CPM CONSULTANT RETAINED BY THE STATE)

6.2.1 Critical Path Method

a. The Project will be monitored by a detailed critical path method scheduling system. This system shall be the basis for the evaluation of the Contractor’s performance and for progress payments to the Contractor.

b. The Contractor shall provide all the information necessary for the CPM consultant employed by DPMC to develop a CPM network plan demonstrating complete fulfillment of all construction Contract requirements and, as necessary, for the CPM consultant to maintain an accurate CPM schedule throughout the Project. The Contractor, in consultation with the CPM consultant, will establish construction logic and activity time duration consistent with Contract documents and Project requirements. The CPM consultant will establish the level of detail to be reflected on the CPM schedule. The Contractor shall utilize the schedule in planning, coordinating and performing the Work, including all activities of Subcontractors, equipment vendors and material suppliers.

c. The Contractor agrees that the CPM consultant's Project network schedule is the designated plan for completion of all work in the allotted time, and the Contractor will assume full responsibility for the execution of the Work as shown. The Contractor shall indicate formal acceptance of the schedule by signing the final initial (baseline) network diagrams and computer schedule listing.

d. The Contractor shall furnish sufficient labor and construction equipment to ensure the execution of the Work in accordance with the approved CPM progress schedule. If, in the opinion of the DPMC, a Contractor falls behind the CPM progress schedule, the Contractor shall take any and all such steps as may be necessary to bring its work into compliance with the CPM progress schedule. The DPMC may require the Contractor to increase the number of shifts, days of work and/or the amount of construction labor, plant and equipment, all without additional cost to the State.

e. The Contractor shall make no claim for, and have no right to, additional payment or extension of time for completion of the Work, or any other concession because of any misinterpretation or misunderstanding on the Contractor's part of the CPM progress schedule, the Contractor's failure to attend the pre-bid
conference, or because of any failure on the Contractor's part to become fully
acquainted with all conditions relating to the CPM progress schedule and the
manner in which it will be used on the Project, or because of any Subcontractor's
failure to properly participate in the development of a CPM progress schedule or
to perform the Contract in accordance with the CPM progress schedule.

6.2.2 Initial Submittal

a. To the extent necessary for the CPM consultant to reflect in the network
diagrams the plan for completion of this Contract, the Contractor shall meet with
and assist the CPM consultant and furnish, within ten (10) calendar days after
award of this Contract, all necessary information for the preparation of the CPM
progress schedule. This information shall include, but not necessarily be limited
to, a logical sequencing of work operations, activity time estimates, intended crew
flow, activity costs and estimated manpower requirements for each activity.

(1) The network diagram shall show the sequence and interdependence
of activities required for the Project. In preparing the network diagram,
the Contractor shall assist the CPM consultant by breaking up the Work
into activities of a duration of no longer than ten (10) working days each,
except as to non-construction activities (such as procurement of materials,
delivery of equipment and concrete curing) and any other activities for
which the CPM consultant may approve the showing of longer duration.
The diagram shall show not only the activities for actual construction but
also such activities as the Contractor's submittal of shop drawings,
templates and equipment, material fabrication, delivery of equipment and
material, substantial completion, final completion, punch list and closeout,
and the delivery of Owner-furnished equipment, if applicable. The
Contractor shall provide activity durations to the CPM consultant for each
activity on the diagram.

(2) If requested by the CPM consultant, the Contractor shall furnish
any information needed to justify the reasonableness of activity time
duration. Such information shall include, but not be limited to, estimated
activity manpower, unit quantities, and production rates.

(3) Failure by either the Contractor or the CPM consultant to include
any element of work required for the performance of the Contract shall not
excuse the Contractor from completing all work required within any
applicable date, notwithstanding DPMC approval of the network
diagrams.

(4) The CPM consultant will establish the level of detail to be
reflected in the CPM system.

(5) Seasonal weather conditions shall be considered in the planning
and scheduling of all work influenced by high or low ambient
temperatures for the completion of all Contract work within the allotted
Contract duration. In addition, appropriate allowances shall be made for
anticipated time losses due to normal rain and snow conditions based on
the previous five year average for that geographical area, by statistically expanding the estimated time duration for weather-sensitive activities, to ensure that the required completion date is achieved.

b. The Contractor shall be prepared to meet as many times as necessary with the CPM consultant to develop the information required for the timely development of the progress CPM schedule.

c. The Contractor shall furnish a breakdown of its total Contract price by assigning dollar values to each applicable network activity, coded for the Contractor and each Subcontractor, which cumulatively equals the total Contract amount. Upon acceptance by DPMC, the values will be used as a basis for determining progress payments. Progress payments to the Contractor shall be dependent upon final acceptance by DPMC of the cost-loaded progress CPM schedule.

d. Accompanying the network diagram and computer scheduling listing, the CPM consultant will furnish a computer-generated cost requisition listing, which will provide a separate tabulation of each activity shown on the CPM schedule in order of bid item or trade responsibility code as agreed to by DPMC. This listing will show, for each activity, the Contractor and each Subcontractor, the estimated dollar value of Work in place for totally or partially completed activities, including subtotals by bid items and grand totals for the entire Project. The cost requisition listing will also contain monthly activities reflecting the cost of Project overhead and administrative expenses, and activities reflecting the monthly cost of administering Project General Conditions.

6.2.3 Review and Approval:

a. After receipt of the initial network diagram, computer-produced schedule and cost requisition listing, the DPMC representative shall meet with the Contractor and CPM consultant for joint review, correction, or adjustment of the proposed plan and progress CPM schedule to evaluate the cost values assigned to each activity. Within ten (10) calendar days after the joint review, the CPM consultant will revise the network diagram and/or computer-produced schedule in accordance with agreements reached during the joint review, and shall submit two (2) copies each of the revised network diagram, computer-produced schedule and cost requisition listing to DPMC. The revised schedule documents will be reviewed by DPMC and, if found to be as agreed upon, will be approved. A copy of each will be returned to the CPM consultant for distribution and the CPM consultant shall forward same to the Contractor by email and/or overnight mail. The Contractor shall review these documents and shall indicate acceptance by signing the schedule documents. If the Contractor objects to the schedule documents, the Contractor shall forward these objections in writing to DPMC within ten (10) calendar days of the date of receipt of same or be deemed to have accepted the schedule documents. Objections shall include the precise activities of the schedule to which the Contractor objects and identify the basis of the objection. The Contractor will then meet with the DPMC representative and the CPM consultant to review the Contractor’s objections. The CPM consultant may
revise the network diagram and the computer-produced schedule in accordance with the agreements reached during this final review and shall submit two (2) copies each of the revised network diagram, computer-produced schedule and cost requisition listing to DPMC. The re-submission will be reviewed by DPMC and, if found to be as agreed upon, will be approved and a copy of each will be returned to the CPM consultant for distribution and the CPM consultant shall forward same to the Contractor by email and/or overnight mail. The Contractor shall review these schedule documents to ensure that the documents reflect all changes agreed upon, accept and sign. The Contractor shall indicate its acceptance by signing the scheduling documents, computer-produced schedule and cost requisition. Approval will be without reservation, and the Contractor will be deemed to have accepted the schedule as adequate, proper and binding in all respects and shall not raise further objections to the schedule.

b. After the network diagrams and computer-produced schedule have been signed by the Contractor, the CPM consultant shall forward to the Contractor and DPMC one set of copies of the network diagrams and computer-produced schedule. The network diagram and the computer-produced schedule with approved signatures shall constitute the Project work schedule until subsequently revised in accordance with the requirements of this section.

6.2.4 Progress Reporting and Changes:

a. Once every month, or more often if required by DPMC, the Contractor shall meet with the CPM consultant and DPMC’s representative(s) and provide the information necessary for the CPM consultant to prepare and submit to DPMC a revised (updated) network diagram and computer-generated schedule listing showing:

   (1) Approved changes in activity sequencing;
   (2) Changes in activity duration for activities not started or partially completed where agreed upon;
   (3) The effect on the network of any delays in any activities in progress, and/or the impact of known delays which are expected to affect future work;
   (4) The effect of Contractor modifications (activity duration, logic and cost estimates) to the network;
   (5) Changes to activity logic, where agreed upon, to reflect revision in the Contractor's work plan, i.e., changes in activity duration, cost estimates, and activity sequences for the purposes of regaining lost time or improving progress; and
   (6) Changes to milestones, due dates, and the overall Contract completion date which have been agreed upon by DPMC since the last revision of the CPM schedule.

b. The CPM schedule shall accurately reflect the manner in which the Contractor intends to proceed with the Project and shall incorporate the impact of
all delays, Change Orders and change events as soon as these factors can be defined. All changes made to the schedule shall be subject to approval by DPMC prior to inclusion in the CPM schedule. If the DPMC representative and the Contractor are unable to agree as to the amount of time to be allowed for Change Order work, or the manner in which the Work is to be reflected on the network diagram, the CPM consultant will reflect the logic and time duration furnished by the Contractor for the Change Order work pending final DPMC decision. If non-approved Contractor logic and time durations are used, the Contractor agrees that any time which is projected to be lost on the Project as a result of these schedule changes will be considered the responsibility of the Contractor until a final agreement has been made or a final decision rendered by DPMC regarding the manner in which the Change Order work is to be reflected on the schedule. When this final decision has been made by DPMC, the CPM consultant shall revise the CPM schedule in accordance with such decision and issue a final analysis of the effect of the change on the Project.

c. If the Contractor desires to revise the logic of the approved progress CPM schedule to reflect a sequence of construction that differs from that to which was previously agreed, the Contractor must first obtain the approval of DPMC.

(1) Once each month, at the same time the network is updated, the CPM consultant, the Contractor and the DPMC representative(s) shall jointly make entries on the preceding network diagram schedule to show actual progress, identify those activities started by date and those completed by date during the previous period, show the estimated time required to complete each activity started but not yet completed, show activity percent completed and/or dollars earned, and reflect any changes in the network diagram approved in accordance with the preceding paragraph. After completion of the joint review and DPMC's approval of all entries, the CPM consultant will submit updated network diagrams, an updated computer-produced calendar-dated schedule and cost requisition listing to DPMC.

(2) The resultant monthly CPM computer printout and network diagrams shall be recognized by the Contractor as its sole updated construction schedule to complete all remaining Contract work.

(3) In addition to the foregoing, once each month the Contractor will receive a narrative report prepared by the CPM consultant. The narrative report will include a description of the amount of progress made during the last month in terms of completed activities in the plan currently in effect, a description of problem areas, current and anticipated delaying factors and the estimated impacts the delays have on the performance of other activities and completion dates, and recommendations on corrective action for the Contractor. Within seven (7) calendar days after receipt of this report, the Contractor shall submit to DPMC a written explanation of corrective action taken or proposed. The DPMC, after reviewing the written submission, may take appropriate action.
6.2.5 Payments to Contractor

a. The monthly submission of the computer-produced calendar-dated schedule shall be an integral part and basic element of the estimate upon which progress payments shall be made pursuant to the provisions of Article 9 of these General Conditions. The Contractor shall be entitled to progress payments only upon receipt by DPMC of an updated computer-produced calendar-dated schedule and cost requisition listing.

b. Payments to the Contractor shall be based upon the results of the computer-generated cost requisition listing which shall be prepared in conjunction with each updating of the CPM system as described above. The Contractors shall provide sufficient documentation to confirm reported progress for any cost items appearing in the scheduling and requisition system.

c. Payments to the Contractor shall be dependent upon the Contractor furnishing all of the information which, in the judgment of DPMC, is necessary to ascertain actual progress, and all the information and data necessary to prepare any necessary revisions to the computer-produced calendar-dated schedule, cost requisition listing and/or the network diagram. DPMC’s determination that the Contractor has failed or refused to furnish the required information shall constitute a basis for withholding payments until the required information is furnished and the schedule and/or diagram is prepared or revised on the basis of such information.

6.2.6 Biweekly Progress Meetings

a. Every two (2) weeks or as otherwise directed by DPMC, the Contractor shall attend a coordination and CPM scheduling meeting on the job site. At this meeting, the Contractor shall provide detailed information regarding the Work schedule to be performed during the upcoming two weeks to permit the CPM consultant to prepare schedules for the subsequent two week period. Biweekly scheduling by the Contractor shall be in accordance with the priorities and degree of concurrent work required by the official CPM schedule for the Project. The Contractor shall be prepared to explain any difference between the Contractor's biweekly schedules and the priorities required by the latest updating of the official CPM schedule.

b. At the biweekly scheduling meeting, the CPM consultant shall review the schedule for the preceding two (2) weeks, and the Contractor shall report the progress actually achieved for each activity which was scheduled to be performed during the two weeks, including the actual dates on which the Work was performed. The Contractor agrees that this information shall constitute the official historical record of Project progress.

c. At each biweekly scheduling meeting, the Contractor shall document any current delays to work operations. In addition, the Contractor shall provide any available information regarding any potential delays.

(1) Following the biweekly scheduling meeting, the CPM consultant will issue to the Contractor a two-week look-ahead schedule as developed
at the meeting that shall constitute the construction schedule for the coming two weeks. The CPM consultant will also issue a narrative biweekly progress analysis documenting progress achieved during the preceding two weeks and analyze delays reported to constitute current or anticipated impacts to timely construction.

(2) The Contractor shall be represented at the biweekly scheduling meeting by its superintendent, who shall have complete authority to provide the information required for the development of the next two (2) weeks schedule, which includes documentation of past progress and documentation of delays. The Contractor’s representatives shall also be authorized to commit to the implementation of corrective action planned to overcome delaying conditions.

6.2.7 Responsibility for Completion

a. The Contractor agrees that, when it becomes apparent from the current project CPM schedule that any Contract completion date will not be met, the Contractor will take any or all of the following actions, as required, at no additional cost to the State:

(1) Increase construction manpower.

(2) Increase the number of working hours per shift, shifts per working days, working days per week, or the amount of construction equipment, or any combination of the above; and/or

(3) Reschedule activities to achieve maximum practical concurrence.

6.2.8 Adjustment of Contract Completion Date

a. The Contract completion dates will not be adjusted except under the specific and limited conditions set forth in the Contract Documents. In the event that the Contractor requests an extension of any Contract completion date, the Contractor shall furnish a justification of such extension and provide any and all supporting evidence that DPMC requires to evaluate the Contractor's request. The DPMC shall either approve, in whole or in part, or reject the Contractor’s request and will advise the Contractor in writing of its decision. If the DPMC finds that the Contractor is entitled to any extension of any Contract completion date under the provisions of this Contract, the determination as to the total number of calendar days extension permitted shall be based upon the currently approved Project CPM schedule and on all data relevant to the extension request. Such data will be included in the next updating of the CPM schedule.

b. The Contractor acknowledges and agrees that the evaluation of Project delays and determinations regarding Project time extension will be based upon the Project CPM schedule and the following criteria:

(1) Float time shown on the Project CPM schedule is not for the exclusive use of either the Contractor or DPMC. It is agreed that float time is available for use by all performing Work on the Project, including the Contractor, other contractors, subcontractor, lower tier subcontractors,
and suppliers to facilitate the effective use of available resources and to minimize the impact of problems of Change Orders which may arise during construction. The Contractor specifically agrees that float time may be used by DPMC or its representatives or consultants in conjunction with the review activities or to resolve Project problems. The Contractor agrees that there will be no basis for a Project time extension as a result of any Project problem, Change Order or delay which only results in the loss of available positive float on the Project CPM schedule. The Contractor further agrees that there will be no basis for a claim for cost escalation for any activity which is completed on or before its initially required late end date as shown on the initial approved Project CPM schedule, regardless of the justifiability or any delaying factors which might have resulted in the elimination of float which was originally available for the activity. If the Contractor refuses to perform work that is available to it, the DPMC may consider, the Contractor to be in breach of the Contract, regardless of the float shown to be available for the Work. In such instances, the DPMC may, without prejudice to any other right or remedy, declare the Contractor to be in default and terminate the employment of the Contractor pursuant to Article 12 of the General Conditions.

(2) The Contractor agrees that no time extension will be granted for time lost due to normal seasonal weather conditions. In order to qualify for consideration for a time extension due to adverse weather conditions, it must be shown by clear and convincing evidence that the weather conditions during a given quarterly period (summer, fall, winter, spring) were more severe than the previous five-year (5) average for the Project geographical area, and that these weather conditions critically impacted the final Project completion date by delaying the performance of work on the main Project critical path. If abnormal weather losses can be shown to have affected the Project critical path, a non-compensable time extension will be considered for that portion of the proven weather-related delays, which exceeded normal weather losses that should have been anticipated for the quarterly period in question.

(3) No time extensions will be considered for any weather conditions that do not affect work on the Project critical path as set forth on the current Project CPM schedule. The Contractor agrees that there will be no basis for a claim for any additional compensation resulting from any time extension issued for weather-related delays.

(4) In order for a given cause (i.e., delay, Change Order, etc.) to be considered as a basis for a total Project time extension, it must meet both of the following criteria:

(a) It must be totally beyond the control of the Contractor and due to no direct or indirect fault of the Contractor; and

(b) It must result in a direct delay to work on the main Project critical path.
(5) The Contractor acknowledges and agrees that actual delays to activities that, according to the Project CPM schedule, do not directly affect the main Project critical path and do not have any effect on the Contract completion date or dates, will not be the basis for a change therein.

(6) Concurrent delays are defined as two or more delays or areas of work slippage that are totally independent of one another and which, if considered individually, would each affect the final Project completion date according to the Project CPM schedule. Where the CPM consultant determines that concurrent delays exist, the Contractor acknowledges and agrees that the following criteria will be used to evaluate time extension:

(a) If the current Project CPM schedule shows two (2) or more concurrent delays, with one analyzed to be the responsibility of DPMC and the other analyzed to be the responsibility of the Contractor, a non-compensable time extension will be considered only if the excusable delay affects the main Project critical path and this delay is shown to be a greater amount than the other concurrent delays when the impacts of the concurrent delays are independently considered. In this event, a compensable time extension will be considered only for that portion of time by which the excusable delay exceeds all concurrent non-DPMC caused delays. For example, if an excusable impact delays the Project by one-hundred (100) calendar days and concurrent contract-caused slippage independently delays the final completion date by ninety (90) calendar days, a time extension will only be considered for a maximum of ten (10) calendar days, provided the excusable delay is on the project critical path.

(b) If the CPM schedule shows concurrent delays with some excusable delays and some the fault of the Contractor, and if the Contractor-caused delays are analyzed to be the main determining impact to the main Project critical path, then there will be no basis for a total Project time extension regardless of the nature of the concurrent excusable delays. A concurrent time extension may, however, be considered for that portion of the total Project slippage which is shown on the CPM schedule to be totally attributable to excusable delays.

(c) If a time extension request is being made for concurrent delays which did not affect the Project critical path, this must be clearly stated in the Contractor's time extension request and all CPM activities which are claimed to have been affected by the cited delay must be specifically identified with all applicable impact dates.
6.3 CONSTRUCTION PROGRESS SCHEDULING PROVIDED BY THE CONTRACTOR

6.3.1 The Project shall be completed within the specified number of calendar days from the effective date of the Notice to Proceed.

6.3.2 The Contractor shall be responsible for preparing and furnishing to the DPMC through the Architect/Engineer before the first Contract requisition date, but in no event later than 30 (thirty) days after the effective date of the Notice to Proceed, a coordinated combined progress schedule that incorporates the progress schedules of the Contractors and all Subcontractors engaged on the Project. The schedule shall be in the form of a network diagram or other recognized graphic critical path progress schedule format that indicates, among other things, predecessor and successor activities, and major and intermediate milestones, in sufficient detail to satisfy the DPMC. (See also section 6.3.4 below.) The Contractor’s initial invoice will not be processed by the DPMC until and unless such a single coordinated progress schedule has been submitted to and approved by the DPMC. Thereafter, the Contractor shall submit an updated coordinated progress schedule on a monthly basis. Receipt and approval of the updates will be a mandatory condition to payment.

6.3.3 Once each month, or more often if required by the DPMC, the Contractor shall meet with the Architect/Engineer and the DPMC representative to gather the information necessary for the Contractor’s preparation of the revised/updated computer generated scheduling reports.

6.3.4 The progress schedule, based upon the logic and time estimates, shall indicate in suitable detail for display, all significant features of the Work of the Contractor and each Subcontractor, including but not limited to, the placing of orders, manufacturing durations, anticipated delivery dates for critical and long-lead items, submissions and approvals of shop drawings, construction activities, all work activities to be performed by the Contractor and its Subcontractors, the beginning and time duration thereof, and the dates of all milestones, substantial and final completion of the various elements of the Work, including punch list and close-out. Reports shall be in booklets, indexed and separated as categorized below. Each activity listed on the Schedule shall include, as a minimum, the following:

a. The activity description;
b. The trade (A/E, Owner, GC, Electrical, Plumbing, HVAC);
c. The duration in calendar days;
d. The Early Start date;
e. The Late Start Date;
f. The Early Finish date;
g. The Late Finish date;
h. The Total Float
6.3.5 The Contractor agrees that no time extension will be granted for time lost due to normal seasonal weather conditions. In order to qualify for consideration for a time extension due to adverse weather conditions, it must be shown by clear and convincing evidence that the weather conditions during a given quarterly period (summer, fall, winter, spring) were more severe than the previous five-year (5) average for the Project geographical area, and that these weather conditions critically impacted the final Project completion date by delaying the performance of work. If abnormal weather losses can be shown to have impacted the Project completion date, a non-compensable time extension will be considered for that portion of the proven weather-related delays, which exceeded normal weather losses that should have been anticipated for the quarterly period in question.

6.3.6 Immediately upon approval by DPMC, the Contractor shall prepare and distribute four copies of the progress schedule to the DPMC plus two copies to the Architect/Engineer. Each monthly updated coordinated schedule shall be signed and dated by the Contractor.

6.3.7 The Contractor shall furnish sufficient labor and construction plant and equipment to ensure the execution of the Work in accordance with the approved progress schedule. If any updated completion time or date for any activity does not conform to the durations or milestones shown in the approved progress schedule, the sequence of activities and/or the time for performance of activities shall be updated on the progress schedule to be approved by the DPMC and cured by the Contractor by any means, including performing concurrent operations, additional manpower, additional shifts, and overtime. No additional charges to the State will be allowed the Contractor for overtime, additional manpower, equipment, additional shifts, etc. (except as may be provided elsewhere in the Contract), if such expediting procedures or measures are necessary to meet the Contract completion date.

6.3.8 The progress schedule shall show:
   a. Recommended Changes in activity sequencing;
   b. Changes in activity duration for activities not started or partially completed, where agreed upon;
   c. The effect on the network of the modifications (activity duration, Predecessors and Successors);
   d. Changes for the purposes of regaining lost time or improving progress, and;
   e. Changes to milestones, due dates, and the overall Contract completion date, which have been agreed upon by the DPMC’s project manager since the last revision of the progress schedule.

6.3.9 The progress schedule shall accurately reflect the manner in which the Contractor intends to proceed with the Project and shall immediately incorporate and reflect the impact of all delays and change orders. All changes made to the schedule shall be subject to approval by the DPMC.
6.3.10 The DPMC will not authorize or approve any claims for additional payment or extension of time for completion of the Work, or any other concession because of any alleged misinterpretation or misunderstanding on the Contractor's part of the Project schedule, the Contractor's failure to attend the pre-bid conference, because of any failure on the Contractor's part to become fully acquainted with all conditions relating to the Project schedule and the manner in which it will be used on the Project, or because of any other failure by the Contractor to properly participate in the development of a progress schedule or to perform the Contract in accordance with the progress schedule.
ARTICLE 7 - TIME OF COMPLETION

7.1 CONTRACT DURATION/NOTICE TO PROCEED

7.1.1 Contract duration shall commence on the effective date set forth on the written Notice to Proceed. The Notice to Proceed will be issued by the DPMC after the DPMC’s receipt and acceptance of properly executed Contract Documents, including performance and payment bonds, proof of insurance and permit technical information submitted by the Contractor and/or Subcontractors. The Contractor shall not be entitled to delay, disruption, acceleration or any other claims arising from a deferred issuance of the Notice to Proceed.

7.1.2 The Contractor shall perform no work at the Contract Site prior to the issuance of the Notice to Proceed.

7.2 SUBSTANTIAL COMPLETION

7.2.1 At the request of the Contractor, the Architect/Engineer or the DPMC, the Contractor and the DPMC representative may make a joint inspection of the Work for the purpose of determining if the Work is substantially completed in accordance with the definition provided in Article 1. If DPMC, in its sole discretion, finds that the Work is substantially complete, then the DPMC will issue a written Notice of Substantial Completion for Beneficial Use. Such Notice shall in no way relieve the Contractor of any contractual obligation(s) or relieve the Contractor from responsibility to promptly complete all remaining Contract Work including, but not limited to, punch list items.

7.2.2 The standard guarantee period for equipment, workmanship and materials shall commence on the date DPMC issues the Notification of Substantial Completion for Beneficial Use, or from the time of completion and acceptance of equipment, work or materials in question, whichever is later.

7.2.3 In the event that the Project is completed in phases or stages, and/or in the event that the DPMC takes possession of any part of the Work pursuant to Section 7.4 of these General Conditions, no part of the Project shall be deemed substantially complete for purposes of the New Jersey Statute of Repose, N.J.S.A. 2A:14-1.1, prior to the issuance of a formal Notice of Substantial Completion for Beneficial Use for the all of the Work.

7.3 FINAL COMPLETION

7.3.1 Final completion of the Contract shall occur when:

a. The DPMC and the Architect/Engineer have determined that the punch list has been completed;

b. The Contractor has complied with the Contract Document’s closeout requirements;

c. The Contractor has submitted all Contract deliverables as required by the Contract Documents including but not limited to the following: “as-built”
documents, operating and maintenance manuals, attic stock, parts lists, repair source lists, training and certificates; and
d. The Contractor has submitted all warranties, guarantees and/or maintenance bonds required under the Contract.

7.4 PARTIAL OCCUPANCY FOR USE

7.4.1 Use and possession prior to completion: The DPMC shall have the right to take possession or use of any completed or partially completed part of the Project. Said possession or use shall not be deemed acceptance of the Work performed on the Project.

7.4.2 Prior to such possession or use, the DPMC shall furnish the Contractor with an itemized list of Work remaining to be performed or corrected on such portions of the Project that are to be possessed or used by the State. Failure by the DPMC to list any item of work shall not be deemed an acceptance of any Work under the Contract.

7.4.3 The Contractor shall not be entitled to recovery of money damages for any delays, disruptions or inefficiencies caused by such partial occupancy.

7.5 DELAY, DISRUPTION AND INTERFERENCE

7.5.1 Delay - Time Extension. If the Contractor's work is delayed, disrupted or interfered with by act, neglect or default of any party, including the State, the Architect/Engineer, or by strikes, lockouts, fire, unusual delay by common carriers, natural disasters, or by any cause for which the Contractor is not responsible; then for all such delays and suspensions, the Contractor shall be allowed one (1) calendar day addition to the time herein stated for each and every calendar day of such delay so caused in the completion of the Work as specified above, the same to be determined by the DPMC. No such extension shall be granted for any delay unless, within ten (10) calendar days after the beginning of such delay, a written request for additional time shall be filed with the DPMC.

7.5.2 Contractor's Damages for Delay, Disruption or Interference

The Contractor shall not be entitled to recovery of money damages from the DPMC caused by delay, disruption or interference with the Contractor's Work except as expressly provided under section 7.5.2 of these General Conditions paragraph. The Contractor expressly agrees that the Contractor's remedy for delay, disruption or interference shall be limited to an extension of time only and that there shall be no recovery of money damages by the Contractor for any delay, disruption or interference with the Contractor's work attributable to any cause whatsoever (other than the State's negligence, bad faith, active interference or other tortuous conduct). The Contractor expressly agrees that it shall not be entitled to recover damages due to delay, disruption or interference caused by any of the following:

a. Delayed execution of the contract or any of the causes referenced in paragraph 7.5.2;

b. Any act or omission by any party other than the State, including, but not limited to, the Architect-Engineer, any other Contractor or Subcontractor, any
CPM or other consultant retained by the State, any construction manager retained by the State, any agency or instrumentality of the federal government or of any local governmental entity or any utility (e.g., gas, electric, telephone, cable);

c. Any act or omission of any agency or instrumentality of the State, other than the DPMC, including, without limitation, the Department of Environmental Protection and the Department of Community Affairs;

d. Weather;

e. Subsurface conditions of any type including, without limitation rock and underground utilities, whether or not such conditions were reasonably ascertainable to the Contractor at the time of bidding;

f. Use of all or any portion the Project premises prior to completion of the Work to the extent that such use is permitted under the terms of the Contract;

g. Delay in obtaining any permit or approval;

h. Delay caused by the issuance of any court order, injunction or restraining order;

i. Any delay which does not entitle the Contractor to an extension of the Contract Completion Time under Section 6.2.8 of these General Conditions; or

j. Delay attributable to any other cause, other than a cause for which the State is legally restricted from enforcing a contractual “no damage for delay” clause under N.J.S.A. 2A:58B-3 or any other provision of law restricting or barring the enforcement of such clauses.

In interpreting this provision, the negligence or other wrongful conduct of others, including, without limitation, the Architect/Engineer, the CPM consultant, any construction management firm and any other firm or person retained by the State shall not be imputed to the State. Further, to the extent that the Contractor is entitled to recover monetary damages for delay under this Contract, such recovery shall be limited to actual direct costs incurred on account of the delay, and shall not include profit or other markup on such costs, home office overhead calculated under the Eichleay formula or any other kind of consequential or indirect cost or damage, including but not limited to any alleged cost or damage under the total cost method, the modified total cost method, or productivity factors (costs for inefficiency based on industry productivity factors such as those provided by the Mechanical Contractors Association of America (MCAA) Factors Affecting Labor Productivity).

7.5.3 In the event of the failure of the Contractor to complete its work within the time stated in its Contract, the Contractor shall be liable to the State in the sum as set forth as liquidated damages in the Contract, for each and every calendar day that the Contractor fails to attain contract completion of the work. This sum shall be treated as liquidated damages to compensate for the loss to the State of the use of premises in a completed state of construction, alteration or repair, and for added administrative and inspection costs to the State on account of the delay; provided, however, that the said liquidated damages shall be in addition to other compensatory or consequential losses or damages...
that the State may incur by reason of such delay, such as, but not limited to, added costs of the Project and the cost of furnishing temporary services, if any. Any such sums for which the Contractor is liable may be deducted by the State from any moneys due or to become due to the Contractor.

7.5.4 It is hereby understood and mutually agreed by and between the Contractor and the State that the start date in the Notice to Proceed, the dates of all required intermediate milestones, and the times for substantial and final completion, as specified in the Contract Documents, are essential conditions of this Contract.

7.5.5 The Contractor agrees that said work shall be executed diligently, at such rate of progress as will ensure full completion of the Work within the time specified. It is expressly understood and agreed, by and between the Contractor and the State, that the time for the completion of the Work herein is a reasonable time, taking into consideration the average climactic range and usual industry conditions prevailing in this locality. If the said Contractor shall neglect, fail or refuse to complete the Work within the time herein specified, or any proper extension thereof granted by the DPMC, then the Contractor does hereby agree, as a part of the consideration for the awarding of its Contract, to pay the State the amount specified in section 7.5.3 above, as liquidated damages for loss of use of the Project as hereinafter set forth, for each and every calendar day that the Contractor may have exceeded the stipulated date in the Contract for substantially completing the Work.

7.5.6 It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall similarly be of the essence.
ARTICLE 8 - CLOSE-OUT

8.1 CLOSE-OUT PROCEDURES/FINAL PAYMENT

As part of the final completion procedures described in Article 7 and the requirements for payment as described in Article 9, the Contractor must complete all of the Close-out procedures as follows:

a. Submit the “as-built” record documents as described in Article 4;

b. Submit all operating and maintenance manuals, parts lists, repair source parts, and certificates as defined in 8.2 below;

c. Provide the necessary training for operating systems and equipment as defined in 8.3 below; and

d. Submit all guarantees as defined in 8.4 below.

8.2 OPERATIONS, EQUIPMENT AND MAINTENANCE MANUALS

8.2.1 The Contractor shall provide six (6) copies of all operating, equipment and maintenance manuals, and applicable warranties, as identified and described in the Contract Documents. The operating, equipment and maintenance manuals and warranties, including contact personnel, addresses and telephone numbers, must include a complete description of all systems and equipment and the method of operating and maintaining the equipment. These manuals must be submitted to the Architect/Engineer for review and approval at the earliest date possible following substantial completion, but in all cases prior to final acceptance. Included within the manuals shall be a list of names, addresses and telephone numbers of all the Subcontractors involved in the installations and of firms capable of performing services for each mechanical item.

8.2.2 As a pre-condition to the Final acceptance of a facility for beneficial use, the Contractor shall provide a "throw-away" copy of operations and maintenance manuals to allow the Using Agency's staff to operate the equipment prior to receiving the hard bound copies required by this Contract.

8.3 TRAINING

The Contractor shall provide formal instruction for DPMC-designated personnel, addressing the operation and maintenance of the facilities and all installed equipment for each operating system or major item of equipment or as otherwise specified. The operations and maintenance manuals shall be used as training materials. Unless otherwise accepted by the DPMC, training course format shall be split equally between classroom instruction and field exercise. All classroom instruction may be videotaped by the DPMC. Classroom instruction may be supported by professionally made videotapes. If used, a copy of each professional video that was utilized shall be provided to the DPMC at no cost for future training and reference.
8.4 GUARANTEE

8.4.1 The issuance of a final certificate for payment and/or partial or complete occupancy of the premises shall not be deemed an acceptance of Work not completed in accordance with the Contract Documents. The issuance of a final certificate for payment and/or partial or complete occupancy of the premises shall not relieve the Contractor or its surety of liability with respect to any express or implied warranties or responsibility for faulty materials or workmanship.

8.4.2 The Contractor shall guarantee and warrant, in writing, the Work performed and all materials furnished under this Contract against defects in materials and/or workmanship. The Contractor shall be responsible for the value or repair of any damage to other Work or to the building premises resulting from the performance of the Contract.

8.4.3 The Contractor is responsible for the above-stated obligations for a period of one (1) year from the date established in 7.2.2 above. All guarantees, including bonds and registrations, required by the Contract Documents shall be in writing and delivered to the DPMC with submission of the invoice for final payment.

8.4.4 The Contractor shall, at its own expense and without cost to the State, promptly after receipt of written notice thereof, make good any defects in materials or workmanship which may develop during stipulated guarantee periods, as well as any damage to other Work caused by such defects or by repairs. Any other defects in materials or workmanship not discovered during the guarantee period shall be repaired and/or replaced at the Contractor's expense, and such shall be completed within a reasonable time after written notice is given to the Contractor.

8.4.5 Pursuant to the Contract Documents, certain permanent equipment, including elevators and HVAC systems, will have to be activated during construction of the Project to support construction operations. Despite any early activation during the construction of the Project, any and all equipment warranties must extend for the time periods required in the Contract Documents, starting at the date set forth in paragraph 7.2.2.

8.4.5 It is expressly acknowledged and agreed that the express and implied warranties and guarantees to which the State is entitled as well as all warranty and guarantee bonds issued by any surety, shall be in addition to and not in lieu of the State's right to seek recourse against the Contractor and the Contractor's surety for defective work.
ARTICLE 9 - PAYMENTS

9.1 INVOICES

9.1.1 Requests for payment under the Contract for materials delivered or services rendered require the proper completion and submittal of specific forms including, but not limited to, the following:

a. DPMC Form 11/AR50-1 - DPMC Invoice;
b. DPMC Form 11-2 - Monthly Estimate for Payment to Contractor;
c. DPMC Form 11-2a - Certification of Prime Contractor;
d. DPMC Form 11-2b – Certification of Subcontractor;
e. Copies of Subcontractor(s) invoices;
f. DPMC Form 11-3 - Prime Contractors Summary of Stored Materials;
g. DPMC Form 11-3A - Agreement and Bill of Sale Certification for Stored Materials;
h. Consent of Surety forms;
i. Certified Payroll Records;
j. Updated project schedule
k. Any other information or documentation required by other provisions of the Contract documents.

9.1.2 No request for payment shall be deemed to be formally submitted and received for payment until all dollar amounts and completion percentages for each line item in the invoice has been determined and agreed upon by the State and the Contractor.

9.1.3 The Contractor shall submit the completed request for payment on a monthly basis for all properly completed billable work to the DPMC Project representative and at the address identified at the pre-construction conference.

9.1.4 One (1) original and one (1) copy of the request for payment packets shall be prepared and submitted unless otherwise specified.

9.1.5 For the purpose of the State's Prompt Payment Act (N.J.S.A. 2A:30A-1 et seq.):

a. A proper invoice will be deemed to have been received by the owner when it is received by the person or entity designated by the State to review and sign the invoice on the State’s behalf at the address designated in the pre-construction conference for receipt of invoices. Receipt of an invoice by such person or entity shall commence the running of the 20-day period for formal approval and certification as provided under N.J.S.A. 2A:30A-2(a);

b. The “billing date”, as the term is used in N.J.S.A. 2A:30A-2, shall be the earlier of the date upon which an invoice for payment is approved for payment or twenty (20) days after the invoice is received, unless within such 20-day period
the invoice is found to be incomplete or otherwise unacceptable and returned to the contractor, with a written explanation of deficiencies;

c. In the event that an invoice is found to be deficient and returned to the contractor, the “billing date” shall be calculated from the date that a corrected invoice is received.

d. Payment shall be considered to have been made on the date on which a check for such payment is dated;

e. Payment terms (e.g., “net 20”) offered by the contractor shall not govern the State’s obligation to make payment;

f. The following periods of time will not be included in the calculation of the due date of any contractor invoice:

(1) Any time elapsed between receipt of an improper invoice and its return to the contractor, not to exceed twenty (20) calendar days; or

(2) Any time elapsed between the State’s return of an improper invoice to the contractor and the State’s receipt of a corrected invoice.

9.1.6 The provisions of this Article 9 shall not govern the State’s payment obligations nor shall they supersede or modify any other contractual provision allowing the withholding of monies from the contractor to the extent that the contractor has not performed in accordance with the provisions of the contract. Nor shall this Article 9 govern the State’s payment obligations nor supersede or modify any other contractual provision governing contractor claims for additional compensation beyond the base contract price and approved change orders.

9.2 INTEREST

9.2.1 Interest shall be payable on amounts due the contractor if not paid within thirty (30) calendar days after the billing date specified in the above subparagraph 9.1.5(b), as provided under the State’s Prompt Payment of Contractors and Subcontractors Act (N.J.S.A. 2A:30A-01, et seq.) Interest on amounts due shall be payable to the contractor for the period beginning on the day after the required payment date and ending on the date on which the check for payment is drawn.

9.2.2 Interest may be paid by separate payment to the contractor, but shall be paid within thirty (30) calendar days of payment of the principal amount of the approved invoice.

9.2.3 Nothing in this Article 9 shall be construed as entitling the Contractor to payment of interest on any sum withheld by the State for any reason permitted under the contract or applicable law, or on any claim for additional compensation, over and above sums due under the base contract or approved change orders.

9.3 SCHEDULE OF VALUES AND FINAL PAYMENT

9.3.1 Unless otherwise directed, the Contractor shall furnish a schedule of amounts for Contract payments (Unit Schedule Breakdown,) of the total Contract price, showing the amount included therein for each principal category of the Work and for each Contractor
and Subcontractor, in such detail as requested, to provide a basis for determining progress payments. The schedule, as approved, shall be used only as a basis for the Contractor's estimates for progress payments, and approval by the DPMC does not constitute acceptance of the allocability and allowability of costs to a specific element of Work. The Contractor is cautioned that no payment requests shall be approved until the Unit Schedule Breakdown has been approved in writing by the DPMC.

9.3.2 The State will make progress payments monthly as the Work proceeds based upon the Unit Schedule Breakdown.

9.3.2 All material and Work paid pursuant to progress payments shall thereupon become the sole property of the State. This provision shall not be construed as relieving the Contractor from the sole responsibility for the protection of all material and Work upon which payments have been made for the restoration of any damaged work, or as waiving the right of the State to require the fulfillment of all of the terms and conditions of the Contract.

9.3.3 Following completion and acceptance of all work, the amount due the Contractor under this Contract shall be paid only upon satisfactory completion, by the Contractor, of all Contract close-out requirements, completion of a State audit on all Contract values and payments, and after the Contractor has furnished the State with a release of claims against the State, arising by virtue of this Contract, other than claims in stated amounts as may be specifically excepted by the Contractor from the release.

9.3.4 If for any reason the Contractor refuses final payment, the Project may be closed out by the State by the processing of a Final Contract Acceptance certification. The lack of such certificate shall not toll the limitations period applicable to Contractor claims against the State.

9.3.5 In addition to other warranties required by provisions of the Contract and specifications, the Contractor warrants that title to all Work, materials and equipment covered by an application for payment will pass to the State free and clear of all liens, claims, security interests or encumbrances, either upon incorporation into the construction or upon receipt of payment to the Contractor, whichever occurs first. This provision shall not be construed as relieving the Contractor from sole responsibility for the care and protection of materials and work upon which payments have been made, or for the restoration of any damaged work, or as a waiver by the State of its rights to require fulfillment of all terms of the Contract.

9.3.6 By recommending approval of any invoice, the Architect/Engineer shall not be deemed to represent that it has made exhaustive or continuous on-Site inspections to check the quality or quantity of the Work, or that it has reviewed the construction means, methods, techniques, sequences or procedures, or that it has made any examination to ascertain how and for what purpose the Contractor has used the moneys previously paid. The payment of an invoice does not constitute an acceptance of the Work. The State reserves the right to further inspect the Work and to withhold retainage and any additional funds required to pay for any corrective action for non-conforming work.

9.3.7 If any corporation licensed to do business in New Jersey shall be or become delinquent in the payment of taxes, assessments or fees due the State, unless under an
active appeal process or any final judgment in the State's favor against the Contractor, the DPMC may, in accordance with N.J.S.A. 54:49-19 or other applicable law withhold moneys due the said corporation for the purpose of assuring the payment to the State of such taxes, assessments, fees or judgment.

9.4 CERTIFICATION OF PAYMENTS TO SUBCONTRACTOR

Pursuant to N.J.S.A. 52:32-40, 41 and N.J.S.A. 2A:44-148; the Contractor shall submit a Certification of Prime Contractors form and a Certification of Subcontractor form for each Subcontractor identified in the Unit Schedule Breakdown, as part of the submission for each invoiced progress payment.

9.5 STORED MATERIALS

9.5.1 Unless specifically allowed in the Contract Documents, all materials and equipment must be delivered and installed or stored on the Site prior to payment for such material or equipment.

9.5.2 The DPMC may at its discretion allow payment for equipment stored off Site provided that the following has occurred:

a. The DPMC has approved the Contractor's written request;
b. The equipment has been properly stored in an approved location;
c. The Contractor has established the Owner’s title to the specific equipment;
d. The Contractor has provided sufficient proof of insurance for the materials, equipment and the storage facility;
e. The Contractor has submitted a release of liens on said stored equipment;
f. The Contractor has submitted a statement agreeing to assume all costs for storage of material and equipment off Site, including, if required by the DPMC, the cost of storing such material and equipment in a bonded warehouse; and

g. The Contractor furnishes the "Prime Contractor's Summary of Stored Materials" and "Agreement and Bill of Sale Certification for Stored Materials," forms respectively.

9.6 ALLOWANCES

9.6.1 The Contractor shall include in its bid all allowances as may be set forth in the Contract Documents. The Contractor shall purchase the "allowed materials" as directed by the DPMC on the basis of the lowest acceptable quote from at least three competitive offers or as a negotiated cost subject to DPMC approval. If the actual cost of the "allowed materials" is more or less than the stipulated allowance, the Contract price may be adjusted accordingly. The adjustment in Contract price shall be made on the basis of the actual purchase cost without additional charges for overhead, profit, bond premium or any other incidental expenses. The cost of installation of the "allowed materials," unless
otherwise specified, is to be included as the responsibility of the Contractor in whose Contract the allowance is included, and the Contractor installing such "allowed materials" shall not be entitled to additional payment for such installation.

9.6.2 Unless otherwise provided in the Contract Documents:

a. These allowances shall cover the Contractor's true costs, including credit for any trade discount, of the materials and equipment required by the allowance, delivered at the Site, including all applicable taxes;

b. The Contractor's costs for unloading and handling, labor, installation costs, overhead, profit and other expenses reasonably required in connection with such allowance items shall be included in the Contract sum and not as part of the allowances.

9.7 RETAINAGE

9.7.1 In making progress payments for Contract work completed, the State will retain ten percent (10%) of the approved invoice amount until final acceptance and completion of all work covered by the Contract.

9.7.2 The Contractor may, after 50% (fifty percent) of the Contract work is in place, and if the Work is proceeding on schedule, apply for a reduction in the amount retained by the State for the duration of the Contract. Such application must be in writing and accompanied by documentation granting formal consent of surety to the reduction in retainage request. If the DPMC determines that the Contractor’s performance has been satisfactory and that the reduction is warranted and appropriate, the State may, with the next progress payment, release any portion of the accumulated retainage in excess of five percent (5%) of the Work in place and retain an amount equal to five percent (5%) of the Work in place for the duration of the Contract. If progress of the Work is not maintained in accordance with the approved schedule, the DPMC may elect to re-institute retainage of ten percent (10%) of the Work in place for the duration of the Contract.

9.7.3 Withholding Payment for Non-Delivery of Data:

a. If technical data such as “as-built” drawings, reports, spare parts lists, repair parts lists, or instruction books (including additional and maintenance manuals), or any part thereof, are not delivered within the time specified by this Contract or are deficient upon delivery, the DPMC has the discretion to withhold from each invoice a percentage (in addition to any other retainage required by the Contract) of the Contract price in accordance with the following table:

<table>
<thead>
<tr>
<th>Total Contract Price</th>
<th>Percentage to be Withheld</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $250,000</td>
<td>10%</td>
</tr>
<tr>
<td>$250,000.01 through $1,000,000</td>
<td>5.0%</td>
</tr>
<tr>
<td>Over $1,000,000</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

b. The withholding of any sums pursuant to this article shall not be construed as, or constitute in any manner, a waiver by the State of the Contractor’s obligation to furnish the data required under this Contract. In the event the
Contractor fails to furnish these items, the State shall have those rights and remedies provided by law and pursuant to this Contract, in addition to, and not in lieu of, the sums withheld in accordance with this article.

9.8 MISCELLANEOUS

9.8.1 Disputes regarding nonpayment of a Contractor’s invoice under this Article 9 may be submitted to non-binding Alternative Dispute Resolution (ADR) upon mutual agreement of the State and the Contractor. In such event, the State and the Contractor shall share equally the fees and expenses of the selected mediator, arbitrator, umpire or other ADR neutral. Provided, however, that nothing herein shall be construed, in whole or in part, as a waiver, release or modification of the provisions of the New Jersey Contractual Act, N.J.S.A. 59:13-1, et seq., which governs claims against the DPMC.

9.8.2 A Contractor not paid sums due under an approved invoice within thirty (30) days of the billing date may suspend performance without penalty for breach of contract, but only after providing the State with seven (7) days written notice of non-payment, and only in the event that the State fails to furnish the Contractor, within that seven-day period, a written statement of the amount withheld and the reasons for the withholding. Nothing herein shall be construed to excuse the Contractor’s nonperformance, or to limit the State’s rights and remedies relating to such non-performance, with regard to any monies withheld from the Contractor upon the proper notice provided under this Article 9, or with regard to any Contractor claim disputed by the DPMC.
ARTICLE 10 - CHANGES IN THE WORK

10.1 CHANGES IN THE WORK

10.1.1 The DPMC may at any time, issue a written Change Order which shall direct a change in the Work within the general scope of the Contract, including, but not limited to, changes:

a. In the plans and/or specifications;

b. In the method or manner of performance of the Work;

c. In the State-furnished facilities, equipment, materials, services, or site; or directing acceleration in the performance of the Work; and/or

d. In the time for the completion of the Work.

10.1.2 Change Orders

10.1.2.1 The Contractor agrees to prepare and submit, within ten (10) calendar days of encountering any conditions it considers a change, or upon receiving official notice of a proposed change or written direction to proceed with a change, a current DPMC form entitled “Contractor Change Order Request,” to the DPMC. The Contractor shall submit an original of the form. Failure to submit a timely form may be grounds for rejection of the request for Change Order, at the DPMC’s discretion.

10.1.2.2 All requests for Contract time extensions must be submitted in accordance with the requirements set forth in Articles 6 and 7, accompanied by copies of the current approved progress schedule and copies of a proposed progress schedule detailing the incorporation of the changed work and the effects of such incorporation on progress. Failure to provide all required information shall be grounds for rejection of the request.

10.1.2.3 DPMC will only consider a contract duration extension Change Order request arising from changes in the Work, if that change is proven by the Contractor to have caused a delay in the completion of the Project. When the Contract duration is increased as a result of a change, the resulting change in Contract amount will include the costs of extended performance, computed in accordance with the terms of this Section, and no further consideration of such costs arising from the specific modification will be given.

10.1.2.4 Every Change Order request submitted by the Contractor shall furnish a price breakdown, which shall cover all work involved in the change whether such work was deleted, added or changed and shall be in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs and profit. Any amount proposed for subcontracts shall be supported by an equally detailed breakdown. In addition, if the request includes a time extension, a justification (see section 10.1.4.) shall also be furnished. The request, together with the price breakdown and time extension justification, shall be furnished by the date specified by the DPMC.

10.1.2.5 The following rates shall apply in computing overhead (indirect costs) and profit for Change Orders that do not exceed $25,000. The percentages shall be applicable for deleted work as well as additional work. When a change consists of both added and
deleted work, the applicable percentages shall be applied to the net cost or credit. In any
event, the percentages shall not exceed the following:

a. Overhead will be the sum of:

(1) fifteen percent (15%) of direct labor costs. NOTE: For the purpose of this article, the term "direct labor" shall include all foremen (identified by name and not included in the Project as the full-time superintendent or full time foreman as required elsewhere in the contract documents), equipment operators and skilled, semi-skilled and common laborers directly assigned to the specified operation. The term "direct labor costs" shall consist of the Contract or actual payroll rate of wage per hour and fringe benefits paid for each and every hour that such employees are actually engaged in the performance of the Work.

(2) fifteen percent (15%) of direct material costs. NOTE: For the purpose of this article, the term "direct material costs" shall consist of the actual costs of the materials including applicable tax and transportation charges.

b. For rented equipment, an hourly rental rate will be used which will be determined based upon the monthly rental rates in the current edition of the Rental Rate Blue Book for Construction Equipment (Rental Book) and dividing it by 176. An allowance will be made for operating costs for each and every hour the equipment is actually operating in accordance with the rates listed in the Rental Book. The Contractor will be allowed only 65% (sixty-five percent) of the rental rate on Contractor-owned equipment.

c. Bond premiums and payroll taxes, if applicable, will be allowed at actual cost. The Contractor shall submit from the surety to DPMC a letter for the bond premiums.

d. The Contractor's profit on Subcontractor's work will be six percent (6%) of the Subcontractor's costs. Subcontractor indirect costs will be computed in the same manner as for the Contractor. The Contractor agrees to incorporate this article in each of its subcontracts. NOTE: When more than one tier of Subcontractor exists, for the purpose of markups, they shall be treated as one Subcontractor.

e. A profit of six percent (6%), where profit is allowable by the terms of the applicable Contract provision, shall be added to the Contractor's total cost. Indirect costs shall not be duplicated in direct costs.

10.1.2.6 For Change Orders in excess of $25,000 the maximum allowable percentages of 15% overhead and 6% profit applies unless negotiated lower based upon the nature, extent and complexity of the Work involved.

10.1.2.7 The DPMC, in order to avoid delays in the progress of work or when in the best interests of the State, has the discretion to direct the Contractor, in writing, to proceed with work claimed by the Contractor to be extra work, and/or to accelerate its work without a prior agreement on entitlement or costs. Such direction shall be in the form of a Letter of Direction. The Contractor may submit a claim for evaluation by
DPMC, for costs or for time on account of such work and/or acceleration on the form entitled "Contractor Change Order Request," completed in sufficient detail and in accordance with this article within ten (10) calendar days after receipt of the Letter of Direction. Nothing in this article shall excuse the Contractor from proceeding with the Work identified in the Letter of Direction and all other Contract Work. Issuance of a Letter of Direction under this article shall not be intended nor construed as an admission or acknowledgment by the State that the Contractor is entitled to additional compensation and/or time on account of such Work and/or acceleration.

10.2 ACCELERATION

The DPMC may order and direct the Contractor to accelerate its Work at any location(s) by increasing its forces, working overtime and/or working on Saturdays, Sundays, and holidays. If acceleration is required by the DPMC, and not due to any delays on the part of the Contractor, the Contractor will be reimbursed for additional costs.
ARTICLE 11 - CLAIMS AND DISPUTES

11.1 CONTRACTOR CLAIMS

11.1.1 Any claims made by a Contractor against the DPMC for damages, extra costs or any other claim made pursuant to the contract are governed by and subject to the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1 et seq., as well as all the provisions in this Contract.

11.1.2 Upon presentation by the Contractor of a request in writing, the DPMC may review any decision or determination of the State or the Architect/Engineer as to any claim, dispute or any other matter in question relating to the execution or progress of the Work or the interpretation of the Contract Documents. Consistent with the intent of this Contract, the DPMC may schedule a conference for the purpose of settling or resolving such claims, disputes or other matters. Where such a conference is conducted, the Contractor and/or the Architect/Engineer shall be afforded the opportunity to be heard on the matter in question. Following review of the Contractor's request, the DPMC and the Contractor may settle or resolve the disputed matter, provided however that any such negotiations, conferences, settlement or resolution shall be subject to all requirements imposed by law, including where applicable, the New Jersey Contractual Liability Act (N.J.S.A. 59:13-1 et seq.). The DPMC’s participation in any effort to negotiate, settle or resolve any such claim or dispute with the Contractor shall not operate to toll or extend the time limitations for notice or suit under the New Jersey Contractual Liability Act.

11.2 MUTUAL RIGHTS AND RESPONSIBILITIES OF ALL CONTRACTORS AND THE ARCHITECT/ENGINEER

11.2.1 Any Contractor or the Architect/Engineer which by its own acts, errors or omissions, damages or unnecessarily delays the Work or otherwise causes damage to the State, any other Contractor or the Architect/Engineer, shall be directly responsible to the aggrieved party or parties, for all costs and expenses incurred due to any such delays and/or damages whether by settlement, compromise or arbitration or judgment.

11.2.2 Any Contractor damaged by the actions of another Contractor or Architect/Engineer shall have a direct right to recovery against the party causing such damages, but shall not have a right to recover such damages against the State.

11.2.3 In addition, the party responsible for causing such damages agrees to defend, indemnify and save harmless the State from all such claims and damages. Nothing contained in this paragraph shall be construed to relieve the responsible party from any liability or damage sustained on account of such acts, errors or omissions.

11.2.4 The State shall not be held vicariously liable to any Contractor for any damages or extra costs caused by any acts or omissions by another party including but not limited to actions of the Architect/Engineer as specified in the above paragraph. The Contractor's exclusive remedy shall be against the party directly responsible for causing such damages or extra costs.
ARTICLE 12 - TERMINATION/SUSPENSION

12.1 SUSPENSION OF THE WORK / STOP WORK

12.1.1 If the Contractor fails to correct defective work or persistently fails to carry out the Work in accordance with the Contract Documents, or if the DPMC determines that it is in the best interest of the Project to do so, the DPMC may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated and the DPMC provides written notice to the Contractor that the stopped Work may resume.

12.1.2 The DPMC shall have the right to defer the beginning or to suspend the whole or any part of the Work herein contracted to be done whenever, in the opinion of the DPMC, it may be necessary or expedient for the State to do so.

12.2 TERMINATION FOR CAUSE

12.2.1 If the Contractor persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials so as to avoid or eliminate delays in the orderly progress of the Work in accordance with the approved schedule; or if the Contractor fails to make prompt payment to any Subcontractor or for materials or labor; or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction; or if the Contractor is guilty of a material breach of a provision of the Contract Documents or otherwise fails to carry out the Work in accordance with the Contract Documents, then the DPMC may, without prejudice to any other right or remedy, and after giving the Contractor and its surety three (3) working days written Notice to forthwith address such breach and default with diligence and promptness, terminate the employment of the Contractor by the issuance of a written Notice to that effect to the Contractor and its surety, should the Contractor fail to comply with the demands of the original above mentioned Three Day Notice.

12.2.2 Upon such termination, the DPMC may take possession of the Site and of all the materials, equipment, and tools on the Site and of any materials stored off Site paid for by DPMC, and may finish the Work by whatever method the DPMC may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

12.2.3 In the event of termination for default, the surety shall either complete the principal’s work or finance the completion of the Work. The surety shall not have the right to do nothing. In the event of the surety’s breach of its obligations to the State, the surety shall be subject to all available damages under the law, including but not limited to debarment and the penalties imposed by New Jersey’s Consumer Fraud Act.

12.2.4 Within seven (7) calendar days following receipt of Notice of Termination by the surety, the surety shall submit in writing its intention to satisfy its bond obligation to the State as obligee, and to explain its plan to complete the Work, tender a completing Contractor or finance the completion of the Work.

12.2.5 If the surety elects to take over the Work and complete same or to tender a completing Contractor, it must furnish notice of its intent to do so in writing over the
signature of an authorized representative and such notice shall be served upon the DPMC within seven (7) calendar days after service upon the surety of the Notice of Termination. This document shall identify the Contractor to perform this work.

12.2.6 If the surety elects to satisfy its bond obligation by financing the completion of the Work, in lieu of taking over same, the surety and State shall enter into an agreement, within thirty (30) days of the termination Notice, setting forth the details of the payments to be made by the surety. All current obligations for labor and materials incurred and outstanding by the defaulting Contractor on this Project shall be paid by the surety without delay, subject to allowance of reasonable time to verify such claims by the surety.

12.2.7 If the surety fails to satisfy its bond obligations within the time frames established above, the DPMC may undertake the completion of the Project in any manner deemed appropriate. In that circumstance, the surety shall not be relieved of any of its payment and performance bond obligations.

12.2.8 If the unpaid balance of the Contract sum exceeds the cost of finishing the Work (including but not limited to liquidated damages for delays and all other remaining damages sustained by the State originating from such breach of Contract), such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor and its surety shall be obligated to pay the difference to the DPMC promptly upon receipt of billing from the State, and this obligation shall survive the termination of the Contract.

12.3 OWNER’S RIGHT TO COMPLETE THE WORK

12.3.1 Alternatively, should the Contractor fail or refuse to correct its breach and default after receiving the required notice as provided under Section 12.2 hereof, the DPMC, in lieu of terminating the Contractor’s employment, may provide for the correction and completion of all remaining Work by other means, and deduct all costs associated with such correction and completion from any undisbursed balance of funds (including earned retainage) remaining under the Contract. Such deduction may be documented by issuance of one or more deductive change orders. DPMC’s correction or completion of Work under this paragraph shall not operate to waive, release or diminish the liability of the Contractor and its surety to the State for any breach or default by the Contractor.

12.4 TERMINATION FOR CONVENIENCE

12.4.1 The DPMC may, at any time, terminate the Contract in whole or in any part for the DPMC’s convenience and without cause when the DPMC in its sole discretion views termination to be in the public interest.

12.4.2 Upon receipt of an order of Termination for Convenience, the Contractor shall not proceed with any item of work which is not specified in the Order of Termination. The Contractor shall complete all items of work specified in the termination order. Such work shall include punch list items and all work necessary to ensure the safety of the public, to properly secure existing work already constructed or partially constructed and to secure the Project Site. This work so ordered shall be performed in accordance with the Contract Documents, and may include items of work not in the original Contract. The Work performed shall be considered substantially complete upon completion and
acceptance of all items of work specified in the Order, except punch list items. After completion of the punch list items and all documents required by the Contract, the Contract shall terminate upon issuance of a Final Certificate and payment. The DPMC reserves the right to declare in default a Contractor who fails to carry out the conditions set forth in an Order of Termination for Convenience.

12.4.3 When the DPMC orders termination of the Contract for Convenience, all completed items of work as of that date will be paid for at the Contract prices.

12.4.3.1 Payment for partially completed work will be paid for at agreed prices.

12.4.3.2 Payment for new items, if any, will be made either at agreed prices or in accordance with Article 10.

12.4.3.3 Materials obtained by the Contractor for the Work but which have not been incorporated therein may, at the option of the State, be purchased from the Contractor at actual cost delivered to a prescribed location, or otherwise disposed of as mutually agreed.

12.4.4 Within sixty (60) days of the effective termination date, the Contractor shall submit claims for additional costs actually incurred, not covered above or elsewhere in the Contract. Such claims may include reasonable mobilization costs, overhead expenses attributable to the Work performed, Subcontractor costs not otherwise paid for, actual idle labor costs if Work is stopped in advance of the termination date. The DPMC will not compensate the Contractor for costs prohibited under provisions of the Contract and/or anticipated profits on work not performed.

12.4.5 If the DPMC terminates the Contractor for cause as provided under Article 12.2 of the General Conditions, and if a court of law subsequently determines such termination for cause to have been undertaken without lawful justification, then such termination shall be deemed a termination for convenience governed by this Article 12.4. In that event, recovery by the Contractor and/or the Contractor’s surety shall be limited to those costs which are recoverable following a termination for convenience under this Article 12.4.
ARTICLE 13 – OTHER REQUIREMENTS

13.1 PREVAILING WAGE

13.1.1 The Contractor shall comply with the New Jersey Prevailing Wage Act Laws of 1963, Chapter 150, (N.J.S.A. 34:11-56.25 et seq.) and all amendments thereto, and this act is hereby made a part of every Contract entered into on behalf of the State of New Jersey through the DPMC, except those Contracts which are not within the contemplation of the Act. Provisions of the Act include the following stipulations and requirements:

a. All workers employed in the performance of every Contract in which the Contract sum is in excess of $2,000 and to which the DPMC is a party shall be paid not less than the prevailing wage rate as designated by the Commissioner, Division of Labor or his or her duly authorized representative.

(1) The Contractor performing public work for the DPMC and which is subject to the provisions of the Prevailing Wage Act, shall post the prevailing wage rates for each craft and classification involved as determined by the Commissioner, Division of Labor. This posting shall include the effective date of any changes thereof, and shall be displayed in prominent and easily accessible places at the Site of the Work or at such place or places as are used by the Contractor/Subcontractor to pay workers' wages.

(2) At the time of the bid due date, the Bidder and any Subcontractors identified by the Bidder must be registered in accordance with “The Public Works Contractor Registration Act” (N.J.S.A. 34:11-56.48 et seq.) All questions regarding registration shall be addressed to:

Contractor Registration Unit
New Jersey Department of Labor
Division of Wage & Hour Compliance
P O Box 389
Trenton NJ 08625-0389
Telephone: 609-292-9464
FAX: 609-633-8591

b. In the event it is found that any worker, employed by any Contractor covered by any Contract in excess of $2,000 for any public work to which the DPMC is a party, has been paid a rate of wages less than the prevailing wage required by such Contract, DPMC may terminate the Contractor's right to proceed with the Work, or such part of the Work as to which there has been failure to pay required wages, and may otherwise execute the Work to completion.

c. In the event that any Subcontractor retained by a Contractor on any Contract in excess of $2,000 for any public work to which the DPMC is a party, has been paid a rate of wages less than the prevailing wage required by such Contract, DPMC may terminate the Contractor's right to proceed with the Work, or such part of the Work as to which there has been failure to pay required wages, and may
otherwise execute the Work to completion or may require that the Contractor immediately substitute a new Subcontractor at the costs set forth in the Contract.

d. Nothing contained in the Prevailing Wage Act shall prohibit the payment of more than the prevailing wage rate to any worker employed on a Project.

e. The Contractor shall, as a condition of subcontract with any tier Subcontractor, require compliance with this section as a condition of Subcontract.

f. The State may audit the Contractor’s conformance with the Prevailing Wage Act. If the result of such audit determines that the Contractor has not complied with the Prevailing Wage Act then such Contractor shall be responsible for the cost of this audit.

13.2 PATENTS

13.2.1 The Contractor shall hold and save the State and its officers, agents, servants, and employees harmless from liability of any nature or kind, including cost and expenses for or on account of any patented or non-patented design, devise, invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the State, unless otherwise specifically stipulated in the Contract Documents.

13.2.2 License and/or royalty fees for the use design, devise, invention, process, article or appliance which is authorized by the State must be reasonable, and paid to the holder of the patent or his or her authorized licensee directly by the State and not by or through the Contractor.

13.2.3 If the Contractor uses any design, devise, invention, process, article or appliance covered by letters, patent or copyright, it shall provide for such use by suitable agreement with the State of such patented or copyrighted design, device or material. It is mutually agreed and understood that, without exception, the Contract prices shall include all royalties or costs arising from the use of such design, devise, invention, process, article or appliance in any way involved in the Work.

13.2.4 The Contractor and/or its surety shall indemnify and save harmless the State from any and all claims for infringement by reason of the use of such patented or copyrighted devise, invention, process, article or appliance, or any trademark or copyright in connection with Work performed under this Contract, and shall defend and indemnify the State for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the execution of the Work or after the completion of the Work. This section shall survive the termination of the Contract.

13.3 RIGHT TO AUDIT

13.3.1 The State reserves the right to audit the records of the Contractor in connection with all matters related to its Contract. The Contractor agrees to maintain its records in accordance with “Generally Accepted Accounting Principles,” for a period of not less than five (5) years after receipt of final payment. All charges must be supported by appropriate documentation, including, but not limited to canceled checks. All records
shall be made available to the New Jersey Office of the State Comptroller or other State audit agency upon request and at no cost to the State.

13.3.2 The Contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller or other State audit agency upon request and at no cost to the State.

13.3.2 The Contractor shall develop, maintain and make available to the DPMC on request such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, Change Orders, all original estimates, takeoffs and other bidding documents, all Subcontractor and supplier Contracts and changes, all records showing all costs and liabilities incurred or to be incurred in connection with the Project (including all Subcontractor and supplier costs), all payment records and all records showing all costs incurred in labor and personnel of any kind, records and other data as the State may request concerning work performed or to be performed under this Contract.

13.3.3 The Contractor acknowledges and agrees that no claim for payment which is premised to any degree upon actual costs of the Contractor shall be recognized or payable by the State except to the extent that such actual costs are substantiated by records required to be maintained under these provisions.

13.3.4 The Contractor acknowledges and agrees that its obligation to establish, maintain and make available records and the State's right to audit as delineated herein shall extend to actual costs incurred by Subcontractors in performing work required under the Contract Documents. The Contractor shall require in each subcontract that the Subcontractor establish, maintain and make available to the State all records as defined and delineated herein, relating to all work performed under the Subcontractor including work performed by a sub-Subcontractor.

13.4 INSURANCE

13.4.1 Insurance To Be Carried By The Contractor:

The Contractor shall obtain and maintain, at its expense and for the duration of the contract, minimum insurance coverage set forth below. By requiring such minimum insurance, the State of New Jersey shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor under this contract. The Contractor shall assess its own risks and if it deems appropriate and/or prudent, maintain higher limits and/or broader coverage. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration or types.

a Commercial General Liability:

(1) Commercial General Liability (CGL)-ISO occurrence form CG001 or a substitute form providing a minimum coverage of $2,000,000 per occurrence for bodily injury liability and $2,000,000 per occurrence for property damage liability and shall cover liability arising from:

- Premises/Operations
• Independent Contractors
• Products/Completed Operations
• Personal and Advertising Injury
• Liability assumed under an insured contract (including defense cost assumed)

(2) The State of New Jersey shall be included as an additional insured under the CGL using ISO additional insured endorsement CG 20 10 and CG 20 37 or a substitute providing equivalent coverage, which endorsement shall include coverage for the State of New Jersey arising out of the completed operations of the contractor, and which coverage shall be maintained in effect for the benefit of the State of New Jersey for a period of three (3) years following the completion of the work specified in section 7.3 of this contract. Additional Insured coverage as required in this subparagraph shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the State of New Jersey.

(3) The CGL general aggregate shall apply separately to this project using ISO CG 2503 form – designated construction projects(s) General Aggregate Limit.

(4) There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from explosion, collapse or underground property damage.

(5) If not included in the policy form the CGL policy must be endorsed with a separation of insureds (severability of interests) endorsement.

(6) CGL policy must provide or be endorsed (ISO form CG 24 04) to provide for waiver of subrogation.

b Business Automobile Liability:

(1) Contractor and subcontractors shall maintain business auto liability insurance and such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

(2) The limits of liability shall be not less than $1,000,000 per occurrence for both bodily injury and property damage liability.

(3) Business Automobile coverage shall be written on ISO form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later additions of CA 00 01.

(4) If required by law, the business auto policy shall be endorsed to provide pollution liability coverage equivalent to that provided under the ISO pollution liability broadened coverage for covered autos form
CA 99 48 and the Motor Carrier Act endorsement (MCS 90) shall be attached.

(5) Waiver of Subrogation -- Contractor waives all rights against the State of New Jersey for recovery of damages to the extent these damages are covered by the business auto liability insurance obtained by Contractor pursuant to Paragraph 2.0 of this Agreement.

c Workers Compensation: Workers Compensation Insurance applicable to the laws of the State of New Jersey and other State or Federal jurisdiction is required to protect the employees of the Contractor or any Subcontractor who will be engaged in the performance of this Contract. This insurance shall include employers' liability protection with a limit of liability not less than $500,000.

d Umbrella Liability: Contractor must maintain an Umbrella Liability Policy excess of the Commercial General Liability, Automobile Liability and Employer Liability coverage.

   (1) The coverages of the umbrella policy must be as broad as the primary policies covered by this policy and include a “drop-down” provision if the primary coverage becomes impaired or exhausted.

13.4.2 Insurance To Be Carried By The State of New Jersey:

a Builders Risk Insurance: Unless otherwise provided in this agreement the State of New Jersey shall provide and maintain, in a company or companies lawfully authorized to do business in the jurisdiction which this project is located, Builders Risk Insurance in the amount of the initial contract amount as well as subsequent modifications for the entire project at the site on a replacement cost basis.

   (1) The Builders Risk coverage shall be on an “All Risk of direct physical loss or damage” or equivalent policy form and include theft, earthquake, flood, temporary structures, demolition and increased cost of construction, architects fees and expenses.

   Also the insurance must include coverage for Equipment Breakdown Coverage (a.k.a. Boiler & Machinery) which shall cover insured Equipment during installation and testing. The Builders Risk insurance shall include the interest of the State of New Jersey, the general Contractor, subcontractors and sub-tier contractors in the project.

   (2) The Builders Risk Policy shall cover all materials equipment and supplies, assemblies and furnishings intended for specific installation in the project while located at the site. The policy will cover portions of the work off site and portions of the work in transit subject to the policy sub-limits for these coverages.

   (3) Waivers of Subrogation -- The State of New Jersey and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees and (2) the
Architect/Engineer, Architect/Engineer’s Consultants, and any of their subcontractors, Sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by the Builders Risk insurance or any other property insurance applicable to the work.

(4) The Builders Risk policy will provide for a waiver of subrogation against all interested parties covered by the policy but only to the extent the loss is covered by the policy.

(5) The above insurance shall apply only to the work described in this contract, and shall not apply to alterations, repairs, maintenance and installations of systems, equipment and other items of work which do not result in creating additional habitable space. This insurance shall not protect against damage or loss to any of the Contractor's or Subcontractor's tools, equipment, scaffolding, staging towers or forms and Contractor's materials stored on Site which are not part of the construction Project,. It is understood that the Contractor will, at its own expense, carry all insurance which may be required to provide the necessary protection against such loss or damage herein described which shall contain a waiver of any right of subrogation against the State of New Jersey.

(6) Deductible Provisions -- The insurance protection described herein may contain a deductible clause. The State of New Jersey agrees to bear the cost of all deductibles of the Builders Risk Policy.

(7) Loss Reporting and Loss Adjustment – The Contractor will receive a Loss Reporting Form whenever Builders’ Risk Insurance is written. This form includes appropriate loss reporting instructions. In the event of loss, the Contractor shall immediately notify the State of New Jersey, DPMC, in writing, and take any other appropriate steps as may be required under the standard builders' risk insurance policy in effect. Upon the occurrence of any loss or damage prior to the acceptance of the building by the State, the Contractor shall, at the State's option, replace and repair the damaged work as originally provided in the drawings and specifications at no additional compensation to that provided in the original Contract.

(8) Status Trustee for Loss Adjustment -- All losses will be adjusted with, and payable to, the State of New Jersey, as trustee for the insured as their interests may appear. The Contractor shall be named jointly with the State in all policies of insurance, all of which shall be open to inspection by the State.

(9) This provision shall not relieve the Contractor from its obligation to complete, according to plans and specifications, the Project covered by the Contract, and the Contractor and its surety shall be obligated to full performance of the Contractor's undertaking.
13.5 ASSIGNMENT OF ANTITRUST CLAIMS

13.5.1 The Contractor recognizes that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the ultimate purchaser. Therefore, and as consideration for executing this Contract, the Contractor, acting herein by and through its duly authorized agent, hereby conveys, sells, assigns, and transfers to the State of New Jersey, for itself and on behalf of its political subdivisions, instrumentalities, and public agencies, all right, title and interest to all claims and causes of action it may now or hereafter acquire under the antitrust laws of the United States or the State of New Jersey, relating to the particular goods or services purchased or acquired by the State of New Jersey or any of its political subdivisions or public agencies pursuant to this Contract.

13.5.2 In connection with this assignment, the following are the express obligations of the Contractor:

a. The Contractor will take no action which will in any way diminish the value of the rights conveyed or assigned hereunder.

b. The Contractor will advise the Attorney General of New Jersey and DPMC:
   (1) in advance of its intention to commence any action on its own behalf regarding any such claim or cause(s) of action; and/or
   (2) immediately upon becoming aware of the fact that an action has been commenced on its behalf by some other person(s) of the tendency of such action.

c. The Contractor will notify the defendants in any antitrust suit of the fact of the within assignment at the earliest practicable opportunity after the Contractor has initiated an action on its own behalf or becomes aware that such an action has been filed on its behalf by another person. A copy of such Notice will be sent to the Attorney General of New Jersey and the DPMC.

13.5.3 It is understood and agreed that in the event any payment under any such claim or cause of action is made to the Contractor, it shall promptly pay over to the State of New Jersey the allotted share thereof, if any, assigned to the State hereunder.

END, GENERAL CONDITIONS
SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
7. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: DPMC Project No. P1200-00 Dr. James Still Office Stabilization

1. Project Location: 211 Church Road, Medford, NJ 08055

B. Owner: New Jersey DEP; Office of Resource Development

C. Architect: Historic Building Architects, LLC, Annabelle Radcliffe-Trenner, 312 West State Street, Trenton, NJ 08618, Tel 609-393-3999, email: art@hba-llc.com

D. Architect's Consultants: Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. KSI Structural Engineers, Kevin Sommons, Structural Engineer, 149 Yellowbrook Road, Farmingdale, NJ 07727, Tel 732-938-2666, email: ksommons@ksi-pe.com

2. Environmental Connection Inc., Steven Mania, President, 120 North Warren Street, Trenton, NJ 08608, Tel 609-392-4200, email: smania@vtihq.com
3. Richard Grubb & Associates, Michael Gall, Sr. Archaeologist, 259 Prospect Plains Road, Cranbury, NJ 08512, Tel 609-655-9692, email: mgall@rgaincorporated.com

4. Melick Tulley and Associates, a Division of GZA, Cory S. Karinja P.E., Geostructural Engineer. Tel 732-356-3400, email: cory.karinja@GZA.com

1.4 SCOPE OF WORK INCLUDED

A. 02 Site Construction

1. Remove all materials at east addition, including but not limited to roofing, wood framing, siding, CMU wall and foundation wall.
2. Remove all materials at north addition, including but not limited to roofing, framing, siding, and CMU piers. Remove concrete steps at north addition.
3. Remove all materials at south porch addition, including but not limited to roofing, framing, porch posts, concrete deck, and CMU foundation walls.
4. Remove all aluminum and horizontal wood clapboard siding and other materials down to vertical board siding.
5. Remove brick chimney at west elevation and salvage brick, per Architect direction.
6. Remove and salvage south porch steps.
7. Carefully remove all hazardous materials in accordance with environmental building assessment guidelines.
8. Regrade at 21/8 away from building foundation. Install new topsoil and seed with grass.

B. 03 Concrete

1. Repair concrete footings.
2. Install Helical Piles to support stone foundation wall.

C. 04 Masonry

1. Rebuild stone foundation walls associated with stabilization of stone foundation walls at interior and exterior of northwest corner, see concrete above for new support.
2. Selective raking out and repointing work associated with stabilization of stone foundation walls at interior and exterior.

D. 06 Wood

1. Selective replacement of vertical board siding, as indicated on drawings. Install new wood vertical battens at all elevations.
2. Install new plywood roof decking, as indicated on drawings.
3. Sister first floor ceiling joists, as indicated on drawings. (unit price)
4. Sister first floor joists, as indicated on drawings. (unit price)
5. Install new sill plates at northwest corner and south foundation wall and as indicated on drawings. (unit price)
6. Restore wood cornice trim, as noted on drawings.
E. 07 Thermal and Moisture Protection
   1. Install ice & watershield and roofing under felt where addition removed.
   2. Repair asphalt shingle roof and associated trim.

F. 09 Finishes
   1. Complete all stucco removal in accordance with hazardous material abatement requirements at stone foundation.
   2. Install new two coat parged stucco coating at foundation walls.
   3. Strip all paint and prime and stain all vertical boards and window trim.

1.5 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings and by the Contract limits set out in the General Requirements.

B. Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

   1. Limits: Confine construction operations to area as designated on Sheet A101.
   2. Driveways, Walkways 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 for storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
   3. Construction Fencing: Allow for fencing to be dismantled and rebuilt.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. No Occupancy: Owner will not occupy the existing building during entire construction period.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend & State Holidays & Closures: Not permitted unless otherwise authorized by Owner and with 48 hours advance notice to the Owner.

C. Existing Utilities: No water or electric are available on site. The Contractor will provide water and electric for construction purposes.

D. Toilet Facilities: The Contractor to provide temporary portable toilet facilities (port-a-john) for use by all construction trades. Lock portable toilet during non-working hours.

E. Retain "Noise, Vibration, and Odors" Paragraph below for work in or near occupied facilities. Where required for Project, add definitions for high levels of noise.

F. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of vibration, not permitted adjacent to building.

G. Restricted Substances: Use of tobacco products and other controlled substances on Project Site is not permitted.

H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

I. Protection: Provide temporary protection as follows:

1. Windows and openings as needed to prevent dust and debris from infiltrating the building interior.
2. Protect existing ceiling framing and finishes to prevent any damage and to prevent dust and debris from infiltrating the building interior.
3. Protect all areas where Hazmat Remediation is ongoing.
4. Protect all existing historic fabric where building addition removed.

1.8 SECURITY AND SIGNAGE PROCEDURES

A. Provide secure dry storage for materials for which the Owner has made payment and which are stored on site.

B. Secure completed work as required to prevent loss.

C. At the close of work on Fridays, the contractor’s supervisor will meet with the Owner’s designated representative and ensure that the building site is clean, properly secured, and that all security measures have been made.
1.9 HISTORIC SIGNIFICANCE

A. The Dr. James Still Office is located in Medford, NJ and was built in 1855 by an African American Dr. known as the "Black Doctor of the Pines." The office is a one-story, three-bay, hipped-roof Victorian cottage with wood acorn pendant brackets along the cornice.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000
SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:
   1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
   2. Section 014000 "Quality Requirements" for field testing by an independent testing agency.

1.3 DEFINITIONS

A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price 1: Vertical Board Replacement
   1. Description: Remove existing vertical boards and install new. Base Scope of Work includes 300 LF. Location of base scope replacement vertical boards is shown on Drawings A203 and A204.
   2. Unit of Measurement: Per LF. of 1” thick 12” wide vertical board to match existing boards.

B. Unit Price 2: Replace Wood Trim Cornice
   1. Description: Furnish and install replacement cornice trim, Types A, B & C. See Trim Replacement Schedule on A302 for Base Contract Replacement quantities.
   2. Unit of Measurement: Per linear foot of wood trim cornice Type A, B & C.

C. Unit Price 3: Replace Acorn Drop Pendants
   1. Description: Furnish and install replacement Acorn Drop Pendant Trim Type D, per A01C Series. See Trim Replacement Schedule on A302 for Base Contract Replacement Quantity.
   2. Unit of Measurement: Per acorn drop pendant Trim Type D.

D. Unit Price 4: Replace Sill Plate
   1. Description: Remove existing sill plate, Furnish and install replacement sill plate. See Structural Drawing S103 for Base Contract Replacement quantities and locations. Unit price to be based on Detail 2 or 3 S201.
   2. Unit of Measurement: Per linear foot of sill plate replacement.

E. Unit Price 5: Sister Roof Rafters
   1. Description: Sister existing roof rafters with new rafters. See Structural Drawings S104 Roof Plan for repair locations & Detail 4 S201 for installation detail. Base scope includes 2 roof rafters to be sistered.
   2. Unit of Measurement: Per 3 feet of roof rafter replacement.

F. Unit Price 6: Sister Floor Joists
   1. Description: Sister existing floor joists with new. Drawing S103 shows 2 locations. Contractor to include 6 additional locations in base scope. (locations are not shown on S103 at this time)
   2. Unit of Measurement: Per 4 linear foot floor joist repair as described on 1st Floor Framing Plan.

G. Unit Price 7: Sister Ceiling Joists
   1. Description: Supply and install one new 18’ long ceiling joist to be sistered to an existing ceiling joist. Assume size of joist to be 2” x 6”. See Structural Drawing S104 for existing ceiling joists layout. (Exact location is not provided at this time.)
   2. Unit of Measurement: Per ceiling 18’ joist. ( Entire length)

END OF SECTION 012200
SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 MINOR CHANGES IN THE WORK

A. Owner or Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Owner or Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Owner or Architect are not instructions either to stop work in progress or to execute the proposed change.

2. Within 10 calendar days, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

   a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

   b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

   c. Include costs of labor and supervision directly attributable to the change.

   d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

   e. Quotation Form: Use forms provided by Owner.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Within 10 calendar days, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change. Provide a complete
description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Use Change Order Request form provided by Owner.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

A. Upon Owner’s written notice to proceed with a change, Contractor is to prepare an original copy of the Change Order Request on the Owner provided form.

1.7 CONSTRUCTION CHANGE DIRECTIVE


1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Requirements:
   1. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
   2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
   1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
   2. Submit the schedule of values to Architect and Owner at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the schedule of values:
      a. Project name and location.
      b. Name of Architect.
c. Owner Project number and name.
d. Contractor's name and address.
e. Date of submittal.


3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

   1) Labor.
   2) Materials.
   3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal CSI Division amounts in excess of $25,000.

5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site.

6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

7. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.

8. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.

9. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling 5 percent of the Contract Sum and subcontract amount.

10. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent
with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
   2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
   3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
   4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

D. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
   1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
   2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
   3. Provide summary documentation for stored materials indicating the following:
      a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
      b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
      c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

E. Transmittal: Submit signed and notarized original copies of each Application for Payment to Architect. Number of copies provided by Owner. One copy shall include waivers of lien and similar attachments if required.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien as required by Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Products list (preliminary if not final).
6. Sustainable design action plans, including preliminary project materials cost data.
7. Schedule of unit prices.
8. Submittal schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
13. Initial progress report.
15. Additional information required by Owner.

H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to the following:
1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Evidence that claims have been settled.
5. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
6. Final liquidated damages settlement statement.
7. Additional information required by Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900
SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:
   1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
   2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

A. BIM: Building Information Modeling.

B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
   1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
   1. Project name.
   2. Project number.
   3. Date.
   4. Name of Contractor.
   5. Name of Architect.
   6. RFI number, numbered sequentially.
   7. RFI subject.
   8. Specification Section number and title and related paragraphs, as appropriate.
   9. Drawing number and detail references, as appropriate.
   10. Field dimensions and conditions, as appropriate.
   11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   12. Contractor's signature.
   13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
      a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Provided by Owner or approved by Architect and Owner.
   1. Attachments shall be electronic files in PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
   1. The following Contractor-generated RFIs will be returned without action:
a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for approval of Contractor's means and methods.
d. Requests for coordination information already indicated in the Contract Documents.
e. Requests for adjustments in the Contract Time or the Contract Sum.
f. Requests for interpretation of Architect's actions on submittals.
g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at monthly project meeting.
   1. Project name.
   2. Name and address of Contractor.
   3. Name and address of Architect.
   4. RFI number including RFIs that were returned without action or withdrawn.
   5. RFI description.
   6. Date the RFI was submitted.
   7. Date Architect's response was received.
   8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.7 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Architect's Data Files Not Available: Architect will not provide Architect's digital data files for Contractor's use during construction.

B. Use Architect’s website to download project specific documents. All files posted will be in pdf format. The site will include the following:
   1. Project Directory.
   2. Meeting Minutes and Agenda.
3. RFI Forms and Logs.
4. Field Reports.
5. Submittals and Logs.

C. Contractor will be responsible for downloading appropriate software to access website. The Architect will not be responsible for formatting, software and other computer errors.

D. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare 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. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.8 PROJECT MEETINGS

A. General: Owner and Architect will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect within three days of the meeting.

B. Preconstruction Conference: Owner and Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner and Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

   a. Responsibilities and personnel assignments.
   b. Tentative construction schedule.
   c. Phasing.
   d. Critical work sequencing and long lead items.
   e. Designation of key personnel and their duties.
   f. Lines of communications.
   g. Use of web-based Project software.
   h. Procedures for processing field decisions and Change Orders.
i. Procedures for RFI's.
j. Procedures for testing and inspecting.
k. Procedures for processing Applications for Payment.
l. Distribution of the Contract Documents.
m. Submittal procedures.
n. Sustainable design requirements.
o. Preparation of Record Documents.
p. Use of the premises and existing building.
q. Work restrictions.
r. Working hours.
s. Owner's occupancy requirements.
t. Responsibility for temporary facilities and controls.
u. Procedures for moisture and mold control.
v. Procedures for disruptions and shutdowns.
w. Construction waste management and recycling.
x. Parking availability.
y. Office, work, and storage areas.
z. Equipment deliveries and priorities.
aa. First aid.
c. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

b. Options.
c. Related RFI's.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Sustainable design requirements.
i. Review of mockups.
j. Possible conflicts.
k. Compatibility requirements.
l. Time schedules.
m. Weather limitations.
n. Manufacturer's written instructions.
o. Warranty requirements.
q. Acceptability of substrates.
r. Temporary facilities and controls.
s. Space and access limitations.
t. Regulations of authorities having jurisdiction.
u. Testing and inspecting requirements.
v. Installation procedures.
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.
z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

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

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

   a. Preparation of Record Documents.
   b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
   c. Procedures for completing and archiving web-based Project software site data files.
   d. Submittal of written warranties.
   e. Requirements for completing sustainable design documentation.
   f. Requirements for preparing operations and maintenance data.
   g. Requirements for delivery of material samples, attic stock, and spare parts.
   h. Requirements for demonstration and training.
   i. Preparation of Contractor's punch list.
   j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
   k. Submittal procedures.
   l. Coordination of separate contracts.
   m. Owner's partial occupancy requirements.
n. Installation of Owner's furniture, fixtures, and equipment.
o. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Architect will conduct progress meetings at bi-weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      1) Review schedule for next period.
   b. Review present and future needs of each entity present, including the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Resolution of BIM component conflicts.
      4) Status of submittals.
      5) Status of sustainable design documentation.
      6) Deliveries.
      7) Off-site fabrication.
      8) Access.
      9) Site use.
     10) Temporary facilities and controls.
     11) Progress cleaning.
     12) Quality and work standards.
     13) Status of correction of deficient items.
     14) Field observations.
     15) Status of RFI.
     16) Status of Proposal Requests.
     17) Pending changes.
     18) Status of Change Orders.
     19) Pending claims and disputes.
     20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the
meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's Construction Schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Unusual event reports.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

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

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

E. Float: The measure of leeway in starting and completing an activity.

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

F. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF file.
3. Paper copies, of sufficient size to display entire period or schedule, as required. Quantity, per Owner’s manual.

B. Startup construction schedule.

1. Submittal of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Daily Construction Reports: Submit at monthly intervals.

G. Material Location Reports: Submit at monthly intervals.

H. Site Condition Reports: Submit at time of discovery of differing conditions.

I. Unusual Event Reports: Submit at time of unusual event.

J. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures re-
lated to the preliminary construction schedule and Contractor's Construction Schedule, includ-
ing, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including work stages, area separations, interim milestones, and par-
tial Owner occupancy.
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review submittal requirements and procedures.
7. Review time required for review of submittals and resubmittals.
8. Review requirements for tests and inspections by independent testing and inspecting
agencies.
9. Review time required for Project closeout and Owner startup procedures.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts,
submittal schedule, progress reports, payment requests, and other required schedules and re-
ports.

1. Secure time commitments for performing critical elements of the Work from entities in-
volved.
2. Coordinate each construction activity in the network with other activities and schedule
them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has
been developed specifically to manage construction schedules.


B. Time Frame: Extend schedule from date established for commencement of the Work to date of
final completion.

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

C. Activities: Treat each floor or separate area as a separate numbered activity for each main ele-
ment of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifi-
cally allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long
lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.


4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
3. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
4. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use-of-premises restrictions.
   g. Seasonal variations.
   h. Environmental control.

6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Mockups.
   e. Fabrication.
   f. Sample testing.
   g. Deliveries.
   h. Installation.
   i. Tests and inspections.
   j. Adjusting.
   k. Curing.
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211 CHURCH ROAD
MEDFORD, NEW JERSEY
DPMC NO. P1200-00

May 13th 2020

Permit Set

1. Building flush-out.
2. Startup and placement into final use and operation.
3. Commissioning.

7. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural completion.
b. Temporary enclosure and space conditioning.
c. Permanent space enclosure.
d. Completion of mechanical installation.
e. Completion of electrical installation.
f. Substantial Completion.

e. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion, and temporary enclosures.

f. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.

G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

H. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

I. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which
recovery will be accomplished.

J. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 STARTUP CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Work Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.
B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

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

1. Submit unusual event reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200
SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Periodic construction photographs.
   3. Final completion construction photographs.
   4. Preconstruction video recordings.
   5. Periodic construction video recordings.

B. Related Requirements:
   1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
   2. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.
   1. Submit photos by uploading to web-based project site. Include copy of key plan indicating each photograph's location and direction.
   2. Identification: Provide the following information with each image description in file metadata tag:
      a. Name of Project.
      b. Name and contact information for photographer.
      c. Name of Architect.
      d. Name of Contractor.
      e. Date photograph was taken.
      f. Description of location, vantage point, and direction.
1.4 QUALITY ASSURANCE
   A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.
   B. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.

1.5 FORMATS AND MEDIA
   A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.
   B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode. Provide supplemental lighting in low light levels or backlit conditions.
   C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
   D. Metadata: Record accurate date and time and GPS location data from camera.
   E. File Names: Name media files with date and Project number and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS
   A. Photographer: Engage a qualified photographer to take construction photographs.
   B. General: Take photographs with maximum depth of field and in focus.
      1. Maintain key plan with each set of construction photographs that identifies each photographic location.
   C. Preconstruction Photographs: Before starting construction take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect
      1. Flag construction limits before taking construction photographs.
      2. Take 30 photographs to show existing conditions adjacent to property before starting the Work.
      3. Take 50 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
      4. Take additional photographs as required to record settlement or cracking of adjacent
structures, pavements, and improvements.

D. Periodic Construction Photographs: Take 20 photographs weekly interval and submit to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

E. Final Completion Construction Photographs: Take 100 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

F. Additional Photographs: Architect may request photographs in addition to periodic photographs specified.
   1. Three days' notice will be given, where feasible.
   2. In emergency situations, take additional photographs within 24 hours of request.
   3. Circumstances that could require additional photographs include, but are not limited to, the following:
      a. Special events planned at Project site.
      b. Immediate follow-up when on-site events result in construction damage or losses.
      c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
      d. Substantial Completion of a major phase or component of the Work.
      e. Extra record photographs at time of final acceptance.
      f. Owner's request for special publicity photographs.

1.7 CONSTRUCTION VIDEO RECORDINGS

A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.

B. Preconstruction Video Recording: Before starting demolition, record digital recording of Project site and surrounding properties from different vantage points, as directed by Architect
   1. Show existing conditions adjacent to Project site before starting the Work.
   2. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of construction.
   3. Show protection efforts by Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233
SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and final completion construction photographs.
5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
6. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

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

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

A. Submittal Schedule: Submit, as an action submittal, a list 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. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
   a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
   a. Scheduled date for first submittal.
   b. Specification Section number and title.
   c. Submittal Category: Action; informational.
   d. Name of subcontractor.
   e. Description of the Work covered.
   f. Scheduled date for Architect's final release or approval.
   g. Scheduled dates for purchasing.
   h. Scheduled date of fabrication.
   i. Scheduled dates for installation.
   j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project number and name.
2. Date.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by 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. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections 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 10 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 10 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 days for initial review of each submittal.

D. 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 action stamp.

E. 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.

F. 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 action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. 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 unsuitable 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 that show 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 Shop Drawings, and before or concurrent with Samples.

B. 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.
   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.
   2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 11x17 inches.
   3. See General Conditions for requirements of print copies of the final approved shop drawings.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
   1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
      a. Project name and submittal number.
      b. Generic description of Sample.
      c. Product name and name of manufacturer.
      d. Sample source.
      e. Number and title of applicable Specification Section.
      f. Specification paragraph number and generic name of each item.
   3. Email Transmittal: Provide PDF transmittal. Include 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 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 one set of Samples. Architect will retain sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit 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. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
a. Name of evaluation organization.
b. Date of evaluation.
c. Time period when report is in effect.
d. Product and manufacturers' names.
e. Description of product.
f. Test procedures and results.
g. Limitations of use.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals 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. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include 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.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required and return it.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action as follows:

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACCEPTED</td>
<td>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.</td>
</tr>
<tr>
<td>ACCEPTED AS CONNECTED</td>
<td>Fabrication/installation MAY NOT be undertaken. In resubmitting, limit corrections to the items marked.</td>
</tr>
<tr>
<td>REVISE AND RESUBMIT</td>
<td>Refer to consultant review stamp.</td>
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<tr>
<td>REJECTED</td>
<td>Refer to consultant review stamp.</td>
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<tr>
<td>REVIEWED BY CONSULTANT</td>
<td>Refer to consultant review stamp.</td>
</tr>
<tr>
<td>NOT FORMALLY REVIEWED</td>
<td>Reviewed for content only.</td>
</tr>
</tbody>
</table>

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

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300
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<td>01100 Summary</td>
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<td>012200 Unit Prices</td>
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<td>012600 Contract Modification Procedures</td>
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<td>Key Personnel List</td>
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<td>Startup Network Diagram</td>
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<td>Construction Schedule Updating Reports</td>
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<td>Daily Construction Reports</td>
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<td>Material Location Reports</td>
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<td>Contractor's Statement of Responsibility</td>
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<td>Testing Agency Qualifications</td>
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<td>Schedule of Tests and Inspections</td>
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<td>Copies of Permits, Licenses, and Certificates</td>
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<td>015000 Temporary Facilities &amp; Controls</td>
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<td>Site Utilization Plan</td>
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<td>Implementation &amp; Termination Schedule</td>
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016000 Product Requirements

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017300 Execution

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017700 Closeout Procedures

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<td>Contractor's List of Incomplete Items</td>
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<td>Certified List of Incomplete Items</td>
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<td>Certificates of Release</td>
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<td>Certificates of Insurance</td>
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<td>Field Report: Pest Control Inspection</td>
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<td>Schedule of Maintenance Material Items</td>
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<td>Warranties</td>
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017839 Project Record Documents

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<td>Record Specifications</td>
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<td>Record Product Data</td>
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<td>Report of items included in record documents</td>
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Div. 02

024119 Selective Demolition

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<th>Proposed Protection Plan</th>
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<tr>
<td>Schedule of Demolition Activities</td>
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<td>Pre-Demolition Photos</td>
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<td>Inventory of items removed &amp; salvaged</td>
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028200 Asbestos Abatement and Disposal

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<th>Written Respiratory Protection Plan</th>
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<td>Written site-specific Health and Safety Plan</td>
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028313 Lead in Construction

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general protection and treatment procedures for designated historic spaces, areas, rooms, and surfaces in Project.

1.3 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Design Reference Sample: A sample that represents Architect's prebid selection of work to be matched; it may be existing work or work specially produced for Project.

C. Dismantle: To disassemble or detach a historic item from a surface, or a non historic item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance that are important to the successful preservation as determined by Architect. The entire building is listed on the National Register of Historic Places.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.

H. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

I. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
J. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

K. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

L. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

M. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

N. Retain: To keep existing items that are not to be removed or dismantled.

O. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.

P. Salvage: To protect removed or dismantled items and deliver them to Owner.

Q. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

R. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

A. Historic Treatment Subschedule: A construction schedule coordinating the sequencing and scheduling of historic treatment work for entire Project, including each activity to be performed in historic spaces, areas, and rooms, and on historic surfaces; and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for historic treatment work.

1. Schedule construction operations in sequence required to obtain best historic treatment results.

2. Coordinate sequence of historic treatment work activities to accommodate the following:
   a. Owner's continuing occupancy of portions of existing building.
   b. Owner's partial occupancy of completed Work.
   c. Other known work in progress.
   d. Tests and inspections.

3. Detail sequence of historic treatment work, with start and end dates.

4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.

5. Use of elevator and stairs.

6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
B. Pedestrian and Vehicular Circulation: Coordinate historic treatment work with circulation patterns within Project building(s) and site. Circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.5 PROJECT MEETINGS FOR HISTORIC TREATMENT

A. Preliminary Historic Treatment Conference: Before starting historic treatment work, Architect will conduct conference at Project site.

B. Retain "Attendees," "Agenda," and "Reporting" subparagraphs below if required. If retaining, revise to include Project-specific requirements. Consider retaining second option in "Attendees" Subparagraph if Project includes specific, highly insured items. Insert additional attendees and requirements to suit Project.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor testing service representative, historic treatment specialists, chemical-cleaner manufacturer(s), and installers whose work interfaces with or affects historic treatment shall be represented at the meeting.

2. Agenda: Discuss items of significance that could affect progress of historic treatment work, including review of the following:

   a. Historic Treatment Subschedule: Discuss and finalize; verify availability of materials, historic treatment specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Fire-prevention plan.
   c. Governing regulations.
   d. Areas where existing construction is to remain and the required protection.
   e. Hauling routes.
   f. Sequence of historic treatment work operations.
   g. Storage, protection, and accounting for salvaged and specially fabricated items.
   h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
   i. Qualifications of personnel assigned to historic treatment work and assigned duties.
   j. Requirements for extent and quality of work, tolerances, and required clearances.
   k. Methods and procedures related to historic treatments, including product manufacturers' written instructions and precautions regarding historic treatment procedures and their effects on materials, components, and vegetation.
   l. Embedded work such as flashings and lintels, special details, collection of wastes, protection of occupants and the public, and condition of other construction that affect the Work or will affect the work.

3. Reporting: Architect will record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.
1.6 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Dismantle and salvage each item or object and protect it from damage, then promptly deliver it to Owner where directed at Project site.
2. Coordinate with Owner's preservation architect who will establish special procedures for dismantling and salvaging.

1.7 INFORMATIONAL SUBMITTALS

A. Historic Treatment Subschedule:

1. Submit historic treatment subschedule within 30 days of date established for all work.

B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's historic treatment operations.

C. Historic Treatment Program: Submit 30 before work begins.

D. Fire-Prevention Plan: Submit 30 before work begins.

1.8 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: An experienced firm regularly engaged in historic treatments similar in nature, materials, design, and extent to the work as specified in each Section and that demonstrates the firm's qualifications to perform this work.

1. Field Supervisor Qualifications: Full-time supervisors experienced in historic treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on site when historic treatment work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond control of the specialist firm.

a. Construct new mockups of required work whenever a supervisor is replaced.

B. Historic Treatment Program: Prepare a written plan for historic treatment for whole Project, including each phase or process and protection of surrounding materials during operations. Describe in detail the materials, methods, and equipment to be used for each phase of work. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project historic treatment program with specific requirements of programs required in other historic treatment Sections.
1. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.


1.9 STORAGE AND HANDLING OF HISTORIC MATERIALS

A. Salvaged Historic Materials:

1. Clean loose dirt and debris from salvaged historic items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site or as indicated on Drawings.
5. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:

1. Repair and clean historic items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage: Catalog and store historic items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F or more above the dew point.

1.10 FIELD CONDITIONS

A. Size Limitations in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from historic treatment procedures.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where historic treatment work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during historic treatment work.
5. Contain dust and debris generated by historic treatment work, and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

B. Temporary Protection of Historic Materials:

1. Protect existing historic materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Architect.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:
1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by historic treatment work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for historic treatment work.
3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
1. Prevent solids such as stone or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from historic treatment work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection as indicated on Drawings.

3.2 PROTECTION FROM FIRE

A. Follow fire-prevention plan and the following:
1. Comply with NFPA 241 requirements unless otherwise indicated.
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
   a. If combustible material cannot be removed, provide fire blankets to cover such materials.
3. Prohibit smoking by all persons within Project work and staging areas except where specifically designated for smoking.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
1. Use of open-flame equipment is not permitted.
2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that area is safe.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.

5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
   a. Train each fire watch in proper operation of fire-control equipment and alarms.
   b. Prohibit fire-watch personnel from other work that would distract from fire-watch duties.
   c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
   d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for type of fire risk in each work area. Ensure that nearby personnel and fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
   1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in historic treatment program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL HISTORIC TREATMENT

A. Have historic treatment work performed only by qualified historic treatment specialists.

B. Ensure that supervisory personnel are present when historic treatment work begins and during its progress.

C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 013233 "Photographic Documentation."

D. Perform daily inspections of Project site as the Work progresses to detect hazards resulting from historic treatment procedures.

E. Follow the procedures in subparagraphs below and procedures approved in historic treatment program unless otherwise indicated:

1. Retain as much existing material as possible; repair and consolidate rather than replace.
2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use historically accurate repair and replacement materials and techniques unless otherwise indicated.
5. Record existing work before each procedure (preconstruction) and progress during the work with digital preconstruction documentation photographs. Comply with requirements in Section 013233 "Photographic Documentation."

F. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Architect.

G. Where missing features are indicated to be repaired or replaced, provide work with appearance based on accurate duplications rather than on conjecture, subject to approval of Architect.

H. Where work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

I. Identify new and replacement materials and features with permanent marks hidden in the completed Work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.
3.5 HISTORIC TREATMENT SCHEDULE

A. Spaces, areas, rooms, and surfaces requiring special care and treatment to ensure successful preservation are indicated on Drawings.

   1. All work associated with this building.

END OF SECTION 013591
SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.

4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed similar projects in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that
certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements, consisting of multiple products, assemblies, and subassemblies.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS
A. Shop Drawings:
   1. Include plans, sections, and elevations, indicating materials and size of mockup construction.
   2. Indicate manufacturer and model number of individual components.
   3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS
A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
B. Qualification Data: For Contractor's quality-control personnel.
C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
   1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
   2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Entity responsible for performing tests and inspections.
   3. Description of test and inspection.
   4. Identification of applicable standards.
   5. Identification of test and inspection methods.
   6. Number of tests and inspections required.
   7. Time schedule or time span for tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality-control service.
F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice of Award and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS
A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE
A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

   1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

   1. Contractor responsibilities include the following:

      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with perfor-
mance requirements.

d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect 7 days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.
   a. Allow seven days for initial review and each re-review of each mockup.
7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

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

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Payment for these services will be made from testing and inspection allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.
   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
3. Notify testing agencies at least 24 hours in advance of time when Work that requires test-
QUALITY REQUIREMENTS

DR. JAMES STILL OFFICE STABILIZATION
211 CHURCH ROAD
MEDFORD, NEW JERSEY

May 13th 2020

Permit Set

DPMC NO. P1200-00

ing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
   4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.
   1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000
SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

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

1.2 SUMMARY
   A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
   B. Related Requirements:
      1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES
   A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner, Architect and authorities having jurisdiction.
   B. Sewer Service: Not available
   C. Water Service: Not available
   D. Electric Power Service: Not available

1.4 INFORMATIONAL SUBMITTALS
   A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
   B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
   C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

1.5 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.


1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 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.

B. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

C. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats minimum 36 by 60 inches.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Owner will provide interior space for field offices for duration of Project.

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate
materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 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 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 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.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

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.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, num-
ber, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of Owner's existing toilet facilities will NOT be permitted

D. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

E. Telephone Service: Install WiFi and cell phone access equipment for field office.

1. At each telephone, post a list of important telephone numbers.

   a. Police and fire departments.
   b. Ambulance service.
   c. Contractor's home office.
   d. Contractor's emergency after-hours telephone number.
   e. Architect's office.
   f. Engineers' offices.
   g. Owner's office.
   h. Principal subcontractors' field and home offices.

F. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Project Supervisor to access Project electronic documents and maintain electronic communications.

3.4 SUPPORT FACILITIES INSTALLATION

A. 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.

B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

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

   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
   2. Remove snow and ice as required to minimize accumulations.

D. Waste Disposal Facilities: Comply with requirements as designated at the Preconstruction Conference. See 013100 “Project Management & Coordination.”

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 progress cleaning requirements in Section 017300 "Execution."
F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
   1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

G. Temporary Stairs: Provide temporary scaffolding stairs to access roof.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
   1. Comply with work restrictions specified in Section 011000 "Summary."

C. Temporary Erosion and Sedimentation Control: Comply with requirements of authorities having jurisdiction.

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide extensions and temporary downspouts as necessary.

E. Tree and Plant Protection: Protect all existing plantings and trees.

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

G. Site Enclosure Fence: Prior to commencing work furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
   1. Extent of Fence: As indicated on Drawings.
   2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

H. Barricades, Warning Signs and Directional Signs for Public Visitors: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

I. 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 weathertight enclosure for building exterior.
1. Protect air-handling equipment.

J. 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; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. 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. Provide fire extinguishers adjacent to all soldering activity at all times.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

3.7 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, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000
SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Basis of Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the speci-
fications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 10 days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 10 days of receipt of request, or 5 of receipt of additional information or documentation, whichever is later.
   a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
   b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.


1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   6. Protect stored products from damage and liquids from freezing.
   7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

   1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a
particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …"

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

   a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …"

3. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.

   a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …"

4. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.

   a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …"

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

   a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's
product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
4. Samples, if requested.

B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000
SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
4. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.
1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing. Insert specific refinishing requirements for floors, walls, and ceilings. Revise "Floors and Walls" Subparagraph below to suit Project.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.


2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

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

1.2 SUMMARY
   A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
      1. Substantial Completion procedures.
      2. Final completion procedures.
      3. Warranties.
      4. Final cleaning.
      5. Repair of the Work.
   B. Related Requirements:
      1. Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.
      2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of cleaning agent.
   B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
   C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS
   A. Certificates of Release: From authorities having jurisdiction.
   B. Certificate of Insurance: For continuing coverage.
   C. Field Report: For pest control inspection.
1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.

   a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Advise Owner's personnel of changeover in security provisions.
3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
4. Complete final cleaning requirements.
5. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of
unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit final completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
2. Include the following information at the top of each page:
   a. Project name.
   b. Date.
   c. Name of Architect
CLOSEOUT PROCEDURES

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

   b. Sweep paved areas broom clean. Remove stains, and other foreign deposits.

   c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.

   d. Remove tools, construction equipment, machinery, and surplus material from Project site.

   e. Remove snow and ice to provide safe access to building.

   f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, concrete floors broom clean in unoccupied spaces.

   h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

   i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.

   j. Remove labels that are not permanent.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700
SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:
1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit three sets of marked-up record prints.
2. Number of Copies: Submit copies of record Drawings as follows:

   a. Initial Submittal:
      1) Submit PDF electronic files of scanned record prints one of file prints.
      2) Submit record digital data files and one set of plots.
      3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

   b. Final Submittal:
      1) Submit PDF electronic files of scanned record prints and two set(s) of prints.
      2) Print each drawing, whether or not changes and additional information were recorded.

   c. Final Submittal:
      1) Submit three paper-copy sets of marked-up record prints.
      2) Submit record digital data files and three sets of record digital data file plots.
3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy and annotated PDF electronic files of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities.

E. Reports: Submit written report monthly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

b. Accurately record information in an acceptable drawing technique.

c. Record data as soon as possible after obtaining it.

d. Record and check the markup before enclosing concealed installations.

e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.

b. Revisions to details shown on Drawings.

c. Depths of foundations.

d. Locations and depths of underground utilities.

e. Revisions to routing of piping and conduits.

f. Revisions to electrical circuitry.

g. Actual equipment locations.

h. Duct size and routing.

i. Locations of concealed internal utilities.

j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.

2. Format: DWG Auto CAD Version 2018


4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.

5. Refer instances of uncertainty to Architect for resolution.


   a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.

   b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

4. Identification: As follows:

   a. Project name.

   b. Date.

   c. Designation "PROJECT RECORD DRAWINGS."

   d. Name of Architect
1.5 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders record Product Data and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file and one paper copy.

1.6 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders in record Specifications and record Drawings where applicable.

C. Format: Submit record Product Data as annotated PDF electronic file and one paper copy.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
B. Format: Submit miscellaneous record submittals as PDF electronic file one paper copy.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect’s reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839
SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Remove all materials associated with the north addition, east addition, and south addition, including but not limited to roofing, framing siding, CMU, and dirt fill.
2. Salvage of existing items to be reused or recycled, as noted or requested by Architect.
4. Remove all siding down to vertical board siding.
5. Selectively remove vertical board siding for structural repair access.
6. Remove all stucco at foundation walls.
7. Remove chimney and salvage brick.
8. Carefully dismantle foundation masonry at areas of selective rebuilding.
9. Archeological observation is required during all ground disturbance work.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 013233 “Photographic Documentation”
3. Section 017300 "Execution" for cutting and patching procedures.
4. Section 028213 “Lead In Construction”
5. Section 062013 “Exterior Finish Carpentry”
6. Section 092400 “Stucco Restoration”

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged, reinstalled, or to remain in the Owner’s property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated. Mark each item with location from which removed on a plan.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during
selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations. Mark each item with location from which removed on a plan.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP
A. Unless otherwise indicated, demolition waste becomes property of Contractor. Demolished materials shall be removed from the site by the contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.
2. Mark each item with location from which removed on a plan.

1.5 PREINSTALLATION MEETINGS
A. Pre-demolition Conference: Conduct conference on site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review areas where existing construction is to remain and requires protection.
5. Review scope of archeological monitoring.

1.6 INFORMATIONAL SUBMITTALS
A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property for dust control. Include protection for each individual window by listed window number. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
2. Walk through with Architect to review schedule and procedures.

C. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.
D. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS
A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE
A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project and with not less than 5 years' documented experience performing similar operations with historic buildings.
B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.9 FIELD CONDITIONS
A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
C. Hazardous Materials: Asbestos has been found in parge coat material, caulk at interface of siding and openings, adhesive at windows, and glazing at windows. See also Specification 028213 Lead In Construction.
   1. Hazardous materials will be removed by Owner before start of the Work.
   2. If additional suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
D. Storage or sale of removed items or materials on-site is not permitted.
E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 COORDINATION
A. Arrange selective demolition schedule so as not to interfere with Owner's operations.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.2 REPAIR MATERIALS

A. Except as indicated, use repair materials identical to existing materials.

1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. Submit sample of substituted materials to Architect for review and acceptance.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

B. Photograph or videotape, inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

C. When unanticipated mechanical, electrical or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.

D. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.

E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Comply with requirements specified in Section 013233 "Photographic Documentation."
2. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
Requirement in subparagraph below is for treatment of historic facilities.

3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Retain first subparagraph below if shutting off utilities is responsibility of Contractor. Delete if it is responsibility of Owner.
3. Arrange to shut off utilities with utility companies.
4. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

   a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
   b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
   c. Equipment to Be Removed: Drain piping and cap services and remove equipment.
   d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
   e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
   f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
   g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
3. Comply with requirements for temporary enclosures, dust control, heating, and cooling.
specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
   1. Strengthen or add new supports when required during progress of selective demolition.

C. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
   2. Keep all roads, public and private, free of dirt, much, snow, ice and debris resulting from this work or as a result of natural forces.

D. Remove temporary barricades and protections where hazards no longer exist.

E. Submit Dust Protection Plan for Architect review.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Proceed with selective demolition systematically, from higher to lower level.
   2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
   3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   4. Use of cutting torches will not be permitted.
   5. Where applicable, remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
   6. Where applicable, remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
   7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
   8. Dispose of demolished items and materials promptly. Comply with all legal requirements.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:
1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:
   1. Clean and repair items to functional condition adequate for intended reuse.
   2. Pack or crate items after cleaning and repairing. Identify contents of containers.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition, cleaned, and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Coordinate first subparagraph below with use of elevators, stairs, or building entries permitted by building manager.
   4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
   5. Transport demolished materials off Owner’s property and legally dispose of them.

B. Burning: Do not burn demolished materials.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

B. Remove all debris adjacent to the building perimeter on a daily basis.

C. Restore grade around building perimeter and grade slope away from foundation walls.

END OF SECTION 024119
SECTION 028200 – ASBESTOS ABATEMENT AND DISPOSAL

PART 1     GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including Instructions to Bidders and General Conditions, and other Division 1 Specification Sections, apply to this Section.


1.2 CONDITIONS

A. All documents prepared by Environmental Connection, Inc., (EC) including any attachments, may contain information that is privileged and confidential, and is exclusively generated for the sole and intended use of the recipient(s). EC’s Instruments of Service, including Contract Drawings, Technical Specifications and other documents prepared by EC, are for the sole use of this Project, and unless otherwise provided, EC shall be deemed the Author and Owner of these documents and shall retain all common law, statutory and other reserved rights, including copyrights. EC shall not be liable for the acts, errors or omissions of the Owner and/or Owner’s representative, Vendors, Agents or other entities performing any of the work relative to this Project/Assignment. Should the Owner, and/or Owner’s other Representatives, Vendors, Agents or other entities performing any of the work fail to substantially prevail in any lawsuit brought against EC, EC shall be entitled to recover its reasonable attorneys’ fees and other costs, in the court of appropriate jurisdiction.

B. This project involves the disturbance/removal and disposal of asbestos containing materials to facilitate the structural stabilization and renovation project at the Dr. James Still Office in Medford, New Jersey.

C. For the purposes of this document, the term Contractor shall apply to that Trade which will be performing the respective work relative to the disturbance/removal of identified asbestos containing materials. The Contractor shall be a State of New Jersey, Department of Labor and Workforce Development, (DLWD) licensed Asbestos Abatement Contractor. Proof of licensure is a prerequisite for bid submission.

D. The disturbance/removal of asbestos containing materials referenced in this Section shall be compliant with New Jersey Administrative Codes (N.J.A.C.) 5:23, 8:60, and 12:120, in addition to the United States Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR, Part 1926.1101, and the United States Environmental Protection Agency (USEPA), National Emissions Standard for Hazardous Air Pollutants (NESHAPs), 40 CFR, Part 61, Sub-part M.

E. The disposal of asbestos containing materials shall be in accordance with N.J.A.C. 7:26, in addition to 40 CFR, Part 61M, which requires, at a minimum, asbestos containing waste to be adequately wetted and appropriately packaged, transported in leak-tight containers and disposed of at an authorized landfill for such waste. Waste manifests shall be provided to the Owner.

F. The transport of asbestos containing waste materials shall be in accordance with N.J.A.C. 7:26, including the use of a State of New Jersey, Department of Environmental Protection, (DEP) registered solid waste haulers. United States Department of Transportation regulations, including, but not limited to, 49 CFR, Part 173, shall apply, with respect to placards, labels, etc.

G. Definitions as noted in these Technical Specifications are included as part of the Contract.
H. It shall be the sole responsibility of the Contractor to pay directly all fees associated with any Patent, instrument, devices, process, etc., utilized on this project where required by the patent holder.

I. Except as herein specified, no signs or photographs shall be required other than that necessary for the Contractor to comply with code and the United States Department of Labor, Occupational Safety and Health Administration (OSHA), posting regulations.

J. Water is NOT available at the site(s). Provision of and extension to a source of water shall be the responsibility of the Contractor. The Contractor shall ensure leak tight connections. The Contractor shall comply with code specification requirements regarding connections.

K. Temporary electric service for use during construction is NOT available at the site(s). Provision of and extension to an electric source shall be the responsibility of the Contractor. Where applicable, the Contractor shall install GFCI protection at a point of source outside of containment. All temporary electrical connections shall be accomplished by a licensed electrician employed by the Asbestos Abatement Contractor.

L. There are no restroom facilities available at the site. The Contractor shall be responsible for supplying sufficient restroom accommodations for workers.

M. Temporary heat and temporary cooling are not required.

N. The Contractor shall refer to the General and Supplemental General Conditions with respect to submission of schedules, including a Critical Path Method (CPM) Schedule, a schedule that reflects coordination with other Trades, where applicable, for the installation of temporary protection, etc. The same shall apply for submission of “AS-BUILT” drawings.

O. All requests for work and project scheduling shall be coordinated in writing with the Owner’s representative. The Contractor shall not proceed until written authorization and approval of the scheduled start date is obtained. A 72-Hour advance notice to the Owner’s representative shall be issued in writing requesting any change to the schedule.

P. The Contractor shall field verify all field conditions and quantities specified. The quantities shown are for informational purposes only and no guarantee is expressed or implied that the quantities are correct or that the asbestos containing materials are easily removable from the substrate, surfaces or components. No allowances shall be made for failure of the Contractor to verify in the field amounts or existing field conditions.

Q. The Contractor shall comply with all applicable OSHA regulations, relative to fall protection, operation of boom lifts, etc., where applicable, and the manufacturer’s recommendations, which shall be included with the Contractor’s Health and Safety Program. Boom lift operations, where applicable, shall be in accordance with the American National Standards Institute (ANSI) A92.2-1969 and 29 CFR, Part 1926.453 – Aerial Lifts. Fall Protection, as per 29 CFR, Part 1926.502 – Fall Protection Systems Criteria and Practices, shall also be followed, in addition to any applicable federal, state and local regulations for such activities.

R. All Sections and components, including the Contract Drawings and/or Plans, of these Technical Specifications are interrelated and must be considered in context with provisions documented throughout the Contract Documents. As such, this Section shall not be separated from the balance of the Contract Documents.
S. Where these Technical Specifications conflict with a regulatory requirement, the regulatory requirement shall supersede the Technical Specifications, including the Contractor’s agreement filed with the DLWD to obtain/maintain licensure as an Asbestos Abatement Contractor/firm.

T. Summary by References: Work of this Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specifications Sections, Drawings, Addenda and modifications to the Contract Documents issued subsequent to the initial printing of this project manual and included, but not necessarily limited to, printed material referenced by any of these. Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomena including weather conditions and other forces outside the Contract Documents.

1.3 PROJECT DIRECTORY

A. Building Owner: New Jersey Department of Environmental Protection
   501 East State Street
   Station Plaza Building 5, 4th Floor
   Trenton, New Jersey 08625
   Telephone: 609-984-0176

B. Architectural/Engineering Firm of Record: Historic Building Architects
   312 West State Street
   Trenton, New Jersey 08618
   Telephone: 609-393-3999

C. Project Location: Dr. James Still Office
   209 Church Road
   Medford, New Jersey 08055

D. Environmental Consulting Firm: Environmental Connection, Inc.
   120 North Warren Street
   Trenton, New Jersey 08608
   Telephone: 609-392-4200

E. Project Designer/Contact: Jordan Reed
   Asbestos Project Designer
   Certification # 54949
   Expires April 17, 2020

1.4 COORDINATION

A. The Contractor shall coordinate all activities with the Owner (herein refers to the State of New Jersey, Department of Environmental Protection) or the Owner’s representative (Historic Building Architects), and the Prime Contractor. Where the Trade performing the work specified herein is a sub-contractor, the sub-contractor shall coordinate all work with the Prime Contractor for coordination with the Owner’s representative.

B. Coordination of work shall be notified, at a minimum within seventy-two (72) hours of an event. The exception shall be that of emergency situations.

1.5 QUANTITIES

A. The quantities shown are for informational purposes only. The Contractor shall inspect and verify
all locations, quantities and measurements indicated in Contract Documents prior to bidding. No additional compensation shall be awarded for failure to complete said review or inspection.

1.6 CONTRACT DOCUMENTS

A. Contract Documents: Indicate the work of the Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to, the following:

1. Applicable federal, state and local codes and regulations.
3. Existing site conditions and restrictions on the use of the site.
4. Work performed prior to work under this Contract.
5. Alterations and coordination with existing work.

1.7 DEFINITIONS

A. Definitions contained in this Section are not necessarily complete but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

1. Indicated: This term refers to graphic representations, notes or schedules on the drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled" and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.

2. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Owner's representative," "requested by the Owner's representative," and similar phrases. However, no implied meaning shall be interpreted to extend the Owner's representative's responsibility into the Contractor's area of construction supervision.

3. Approve: The term "approved," where used in conjunction with the Owner's representative's action on the Contractor's submittals, application, and request, is limited to the responsibilities and duties of the ASCM stated in General and Supplementary Conditions. Such approval shall not release the Contractor from the responsibility to fulfill other Contract requirements.

4. Regulation: The term "Regulations" includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the work, whether they are lawfully imposed by authorities having jurisdiction or not.

5. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."

6. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."

7. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
8. **Installer:** An "Installer" is an entity engaged by the Contractor, either an employee, subcontractor or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations.

9. **Project Site:** The Project Site is the space available to the Contractor for performance of the work, either exclusively or in conjunction with others performing other construction as part of the project. The extent of the project site is shown on the drawings and may or may not be identical with the description of the land upon which the project is to be built and/or the facility.

10. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, to report on, and, if required, to interpret, results of those inspections or tests.

11. **Owner's representative:** The Owner's representative will represent the Owner during construction. The Owner's representative will advise and consult with the Owner. The Owner's instructions to the Contractor will be forwarded through the Owner's representative.

12. **Project Administrator:** The Project Administrator is a full-time representative of the Owner at the job site with authority to stop the work upon verbal order if requirements of the Contract Documents are not met, or if in the sole judgment of the Project Administrator, Owner's representative or Owner, the interests of the Owner, safety of any person or the Owner's property are jeopardized by the work.

13. **General Superintendent:** This general superintendent is the Contractor's representative at the work site. This person will generally be the competent person required by OSHA in 29 CFR, Part 1926.1101.

B. **Definitions Relative to Asbestos Abatement**

1. **Accredited or Accreditation (when referring to a person or laboratory):** A person or laboratory accredited in accordance with Section 206 of Title II of the Toxic Substance Control Act (TSCA).

2. **Aerosol:** A system consisting of particles, solid or liquid, suspended in air.

3. **Air Cell:** Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.

4. **Air Monitoring:** The process of measuring the fiber content of a specific volume of air.

5. **Amended Water:** Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.

6. **Asbestos:** The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummintonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

7. **Asbestos Containing Material (ACM):** Any material containing more than 1% by weight of asbestos of any type or mixture of types.
8. **Asbestos Containing Building Materials (ACBM):** Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members of other parts of a building.

9. **Asbestos Containing Waste Material:** Any material which is or is suspected of being or material with an asbestos-containing material which is to be removed from a work area for disposal.

10. **Asbestos Debris:** Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

11. **Asbestos Safety Technician (AST):** A person certified by the New Jersey Department of Community Affairs, hired by the Asbestos Safety Control Monitor, to monitor and inspect the abatement activities pursuant to New Jersey Administrative Code, (N.J.A.C.) 5:23-8.

12. **Authorized Visitor:** The Owner, the Owner's representative, testing lab personnel, the Architect/Engineer, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

13. **Barrier:** Any surface that seals off the work area to inhabit the movement of fibers.

14. **Breathing Zone:** A hemisphere forward of the shoulders with a radius of approximately six (6) to nine (9) inches.

15. **Ceiling Concentration:** The concentration of an airborne substance that shall not be exceeded.

16. **Certified Industrial Hygienist (C.I.H.):** An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

17. **Demolition:** The wrecking or taking out of any building component, system, finish or assembly of a facility with any related handling operation.

18. **Disposal Bag:** A properly labeled six (6) mil thick leak-tight plastic bag used for transporting asbestos waste from work to disposal site.

19. **Encapsulant:** A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

20. **Bridging Encapsulant:** An encapsulate that forms a discrete layer on the surface of an asbestos matrix.

21. **Penetrating Encapsulant:** An encapsulate that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

22. **Removal Encapsulant:** A penetrating encapsulate specifically designed to minimize release during removal of asbestos containing materials.

23. **Encapsulation:** Treatment of asbestos containing materials, with an encapsulant.

24. **Enclosure:** The construction of an air-tight, impermeable, permanent barrier around asbestos containing material to control the release of asbestos fibers into the air.
25. **Filter**: A media component used in respirators to remove solid or liquid particles from the inspired air.

26. **Friable Asbestos Material**: Material that contains more than 1.0% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

27. **Glove Bag**: A polyethylene bag (typically constructed of 10 mil transparent polyethylene or polyvinyl chloride plastic) with inward projecting long sleeve gloves, which is designed to enclose an object from which an asbestos containing material is to be removed.

28. **HEPA Filter**: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in a diameter.

29. **HEPA Filter Vacuum Collection Equipment (or vacuum cleaner)**: High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger. May also be referred to as Air Filtration Device (AFD).

30. **High-Efficiency Particulate Air Filter (HEPA)**: Refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.


32. **Negative Pressure Respirator**: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

33. **Negative Pressure Ventilation System**: A pressure differential and ventilation system.

34. **Personal Monitoring**: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

35. **Polyethylene Sheet (Fire Retardant)**: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame Resistant Textiles and Films. Provide largest sheet size possible to minimize seams, six (6) mil thick as indicated, clear, frosted or black as indicated.

36. **Pressure Differential and Ventilation System**: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the work area at a lower pressure than any adjacent area, and which cleans re-circulated air or generates a constant air flow from adjacent areas into the work area.

37. **Protection Factor**: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
38. **Repair:** Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

39. **Respirator:** A device designed to protect the wearer from inhalation of harmful atmospheres.

40. **Surfactant:** A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation of area.

41. **Time Weighted Average (TWA):** The average concentration of a contaminant in air during a specific time period.

42. **Visible Emissions:** Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

43. **Wet Cleaning:** The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulate and afterwards thoroughly decontaminated or disposed of as asbestos-contaminated waste.

44. **Work Area:** The area where asbestos related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a regulated area as defined by 29 CFR, Part 1926.

45. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.

46. **Assignment of Specialists:** The Specification requires that certain specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities.

### 1.8 CODES & STANDARDS RELATIVE TO ASBESTOS ABATEMENT

A. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

B. The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state and local regulations. The Contractor shall hold the Owner and the Owner's representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or sub-contractors.

C. A copy of the appropriate codes and standards, as referenced herein, shall be maintained at the project site.

D. **Conflicting Requirements:** Where compliance with two (2) or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most
stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Owner's representative for a decision before proceeding.

E. Code of Federal Regulations

1. 29 CFR, Part 1910.20, Access to Employee Exposure and Medical Records;
2. 29 CFR, Part 1910.134, Respiratory Protection;
3. 29 CFR, Part 1910.145, Specifications for Accident Prevention Signs and Spill Response;
6. 29 CFR, Part 1926.55, Gases, Vapors, Fumes, Dusts, and Mists;
7. 29 CFR, Part 1926.103, Respiratory Protection;
8. 40 CFR, Part 61, National Emission Standard for Hazardous Air Pollutants (NESHAP);
9. 40 CFR, Part 173, General Requirements for Shipments and Packaging;
10. 40 CFR, Part 178, Shipping Container Specifications;
12. 40 CFR, Part 763, Sub-part G, Asbestos Hazard Emergency Response Act (AHERA), Asbestos Abatement Projects, Worker Protection; and

F. State of New Jersey requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include, but are not limited to the following:

1. **Asbestos Licenses and Permits**
   N.J.A.C. 8:60 and 12:120
2. **Asbestos Training Courses**
   N.J.A.C. 8:60 and 12:120
3. **Disposal Regulations**
   N.J.A.C. 7:26
4. **Asbestos Hazard Abatement Sub-code**
   N.J.A.C. 5:23-8
5. **Indoor Air Quality Standard**
   N.J.A.C. 12:100-13

G. Standards which apply to asbestos abatement work of hauling and disposal of asbestos waste materials include but are not limited to the following:
1. American National Standards Institute (ANSI)
   1430 Broadway
   New York, New York 10018
   (212) 354-3300

2. Fundamentals Governing the Design and Operation of local Exhaust Systems Publication
   Z9.2-79


   1916 Race Street
   Philadelphia, PA 19103
   (215) 299-5400

   P-189

1.9 PRE-PROJECT INSPECTION

A. Prior to commencement of work, inspect areas in which work is to be performed. Prepare a listing
   of damage to structure, surfaces, equipment or of surrounding properties which could be
   misconstrued as damage resulting from the work. Photograph or videotape existing conditions, as
   necessary to document conditions. Submit a copy of these photos or tapes to the Owner's
   representative prior to starting work.

1.10 POTENTIAL ENVIRONMENTAL HAZARDS

A. The disturbance or dislocation of asbestos containing materials identified in these Technical
   Specifications may cause a release within the building's atmosphere or the environment, thereby
   creating a potential health hazard to workmen and building occupants. The Contractor shall also be
   aware of other potential environmental hazards that may exist at the subject site including, but not
   limited to: mercury containing equipment, refrigerant containing equipment, fuel storage tanks,
   polychlorinated biphenyl (PCB) containing equipment/materials, etc. Apprize all workers,
   supervisory personnel, sub-contractors, consultants and authorized visitors who will be at the job
   site of the seriousness of the hazard and of proper work procedures which must be followed. The
   building shall be unoccupied during all aspects of environmental remediation.

1.11 STOP WORK

A. If the Owner, the Owner's representative, or the Project Administrator presents a written stop work
   order, immediately and automatically stop all work. Do not recommence work until authorized in
   writing by the Owner or his/her appropriate representative.

1.12 CONTRACTOR'S USE OF THE PREMISE

A. Confin e operations, at the site, to the areas permitted under the Contract. Portions of the site beyond
   areas in which work is indicated are not to be disturbed. Conform to site rules and regulations
   affecting the work while engaged in project construction.

B. Obtain facility security regulations for Contractors. All facility security requirements are
   incorporated by reference. No additional compensation or time shall be allotted for failure to comply
   with the facility’s security requirements.
C. Keep existing driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials.

D. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated. If additional storage is necessary obtain and pay for such storage off site.

E. Maintain existing building in a safe and weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period.

F. Keep public areas such as hallways, stairs, and toilet rooms free from accumulation of waste, rubbish or construction debris.

G. Smoking or open fires will not be permitted within the building enclosure or on the premises.

H. Cooperate fully with the Owner and/or the Owner's representative during construction operations to minimize conflicts with other Trades. Perform the work so as not to interfere with the Owner's operation.

I. The Contractor shall be apprised of and be compliant with Site Requirements, which shall be presented to the Contractor, prior to or during mobilization to, the project site.

1.13 SUBMITTALS

A. Pre-Project Submittals

1. Written Respiratory Protection Plan, in accordance with 29 CFR, Parts 1910 and 1926.
2. Written site-specific Health and Safety Plan.
3. All notifications and permits.
4. All Safety Data Sheets (SDS).

B. Post Project Submittals: Upon completion of work on this project the Asbestos Abatement Contractor shall submit the following information to the Owner:

1. Daily activity reports and personnel sign-in sheets
2. Minutes of meetings
3. Visitations; authorized and unauthorized
4. Special or unusual events
5. Waste material disposal manifests

PART 2 DESCRIPTION OF THE WORK

2.1 SCOPE OF WORK

A. The DWLD licensed Asbestos Abatement Contractor shall disturb/remove asbestos containing materials identified in the Table below. Refer to Architectural and Engineering Drawings prepared by Historic Building Architects for additional information.
Table 1 - Asbestos Abatement Scope of Work Summary
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Location</th>
<th>Material</th>
<th>Asbestos Content</th>
<th>Quantity</th>
<th>Removal Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior at Foundation</td>
<td>Parge Coat Located at Original Structure Foundation Top Layer</td>
<td>2% Chrysotile</td>
<td>544 SF</td>
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<tr>
<td>Exterior of Original Structure</td>
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B. Parge coat abatement in the above scope of work shall be performed inside a negative pressure enclosure as described in Section 3.3 of these Specifications.
C. Additions built onto the original structure obscure the asbestos containing parge coat on two (2) sides of the building, and are scheduled for demolition. Demolition shall be performed by others, however, the Contractor shall be responsible for removing any fasteners or materials that are adhered directly to the parge coat.
D. Exterior caulks and glazings shall be removed using exterior wet methods as specified. Glazing removal shall involve the intact removal of the glazed component.
E. Existing windows and doors not to be removed from the original structure. The abatement scope of work is limited to removal of asbestos containing window and door frame caulk from the original structure. Components associated with identified asbestos containing caulk/glazing present on building additions shall be removed in their entirety.
F. The quantities shown are for informational purposes only. The Contractor shall inspect and verify all locations, quantities and measurements indicated in Contract Documents prior to bidding. No additional compensation shall be awarded for failure to complete said review or inspection.

2.2 ADDITIONAL INFORMATION
A. The Trade performing the abatement of asbestos containing materials shall refer to the appropriate Architectural and Engineering Plans, as prepared by the Historic Building Architects, for reference with respect to the locations that will require asbestos abatement as outlined in this Section of the Technical Specifications.
B. The Contractor shall ensure all electrical and other means of hazardous energy is appropriately de-energized, locked-out/tagged-out, in accordance with 29 CFR, Part 1910.147.

C. The Contractor shall comply with the OSHA Technical Manual, Section III, Chapter #4, relative to heat stress.

D. The Contractor shall similarly be advised of OSHA bulletin 3156 from 1998 regarding Cold Stress, as the asbestos abatement work may be scheduled during seasons with cold weather and the abatement work referenced herein will be performed on exterior sections of the building.

E. In accordance with industry standards the Contractor shall be responsible for cleaning of all suspect asbestos containing debris and dust within the work areas, interior and exterior, prior to asbestos abatement. The cleaning shall consist of High Efficiency Particulate Air (HEPA) vacuuming and/or wet-wiping/mopping surfaces as applicable. For large debris items, the debris shall be misted with amended water prior to packaging and disposal as asbestos waste.

G. AFDs shall exhaust via duct work to the exterior of the building.

H. If suspect asbestos containing materials that are not identified above are uncovered during alterations and renovations work, all activities shall cease. The suspect asbestos containing materials shall be inspected by an accredited USEPA Asbestos Building Inspector. Samples of the materials shall be collected and submitted to a third-party independent analytical laboratory that is accredited by the American Industrial Hygiene Association (AIHA), participating in the National Voluntary Laboratory Accreditation Program (NVLAP). Sampling efforts and analytical services shall not be cause for a delay claim by the Contractor against the Owner, the Owner’s representative and/or the Owner’s agents, as well as the Prime and/or General Contractor.

2.3 SCHEDULE

A. The Contractor shall complete all work referenced herein within a schedule determined by Historic Building Architects. Environmental Connection, Inc., (EC) shall provide an Industrial Hygiene Technician (IHT) that shall monitor the project and complete Phase Contrast Microscopy (PCM) air sampling with on-site analysis, as well as provide for post-asbestos abatement air sampling for demobilization and work area re-occupancy with Transmission Electron Microscopy (TEM). TEM sampling shall be employed where more than 160 square feet/260 linear feet of asbestos containing materials are removed, per work area. TEM samples shall require analysis by a third party, independent laboratory that is accredited by the American Industrial Hygiene Association (AIHA) and is a National Voluntary Laboratory Accreditation Program (NVLAP) participant. Results for TEM post abatement air samples shall be available within twenty-four (24) hours upon receipt by the laboratory.

B. The Contractor’s schedule shall account for 10-day notifications to Federal and State Enforcement Agencies prior to the project start date. These contingencies shall not be cause for a delay claim to complete the asbestos abatement work within the renovation project’s schedule.

C. Asbestos abatement work shall be completed prior to all demolition and renovation work by other Trades.

D. Should final clearance air and/or surface samples fail, the Contractor shall re-clean the work area at no additional cost to the Owner, the Owner’s representative and/or the Prime/General Contractor. Additional costs incurred for all re-sampling of the work area shall be the responsibility of the Contractor, at no additional cost to the Owner, Owner’s representative and/or the Prime/General Contractor.
PART 3    ASBESTOS ABATEMENT REQUIREMENTS

3.1 GENERAL REQUIREMENTS

A. The Contractor shall provide a "competent person" on-site at all times, in accordance with OSHA Regulations, and shall maintain the necessary staffing to complete the project in accordance with the project schedule. The competent person shall have knowledge in construction and shall be knowledgeable in reading and interpreting construction documents.

B. All materials (i.e., caulk, polyethylene sheeting, lumber, etc.) utilized in association with asbestos abatement activities shall be of nominal size and fire-retardant. All polyethylene sheeting shall be six (6) mil in thickness.

C. Worker Protection

1. The Contractor shall utilize workers trained in accordance with 29 CFR, Part 1926.1101, dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures.

2. Appropriate respiratory protection shall be provided by the employer, upon notification that employees have received medical clearance and monitoring, followed by passing respiratory fit testing, and have read the Contractor’s written Respiratory Protection Program.

   a. The Contractor shall provide medical examinations for all workers in accordance with 29 CFR, Part 1926.1101. Provide an evaluation of the individual’s ability to work with respiratory protection in an environment capable of producing heat stress in the worker.

   b. The Contractor shall have a respiratory protection program established which is in compliance with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and OSHA’s 29 CFR, Parts 1910 and 1926. The written program shall be posted at the job site.

   c. Provide half-face or full-face type respirators to each worker. Equip full-face respirators with a nose cup or other anti-fogging device. If negative pressure air purifying respirators are being used, the Contractor shall supply a sufficient quantity of respirator filters approved for asbestos dust, so that workers can change filters during the work day. Store respirators and filters at the job site and protect from exposure to asbestos prior to their use. Clean and sanitize as required.

   d. Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z88.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.

   e. Single use, disposable, or quarter-face respirators are strictly forbidden for use during asbestos containing roofing removal and related work.
f. No one having a beard or other facial hair in the respiratory facial fit area will be permitted to don a respirator and enter the work area.

3. Provide disposable full-body coveralls including foot and head covers and require that they be worn by all workers in the work area. Provide a sufficient number for all required changes, for all workers in the work area.

4. Provide gloves to all workers and require that they be worn inside the work area. Do not remove gloves from the work area rather dispose of as asbestos contaminated waste at the end of work.

5. The Contractor shall strictly prohibit workers from eating, drinking, smoking and chewing gum or tobacco while within the work area. In order to perform any of these functions, workers must exit the work area, and are required to follow the outlined decontamination procedures on each occasion.

D. Perform United States Department of Labor, Occupational Safety and Health Administration, (OSHA) 8-hour Time Weighted Average personal exposure air monitoring in accordance with 29 CFR, Part 1926.1101. OSHA monitoring is solely the responsibility of the Contractor, and the Contractor shall ensure that the Contractor’s Supervisor performs OSHA monitoring in accordance with 29 CFR, Part 1926.1101. The Owner’s representative is not responsible for the Contractor’s compliance with OSHA monitoring.

1. **Negative Exposure Assessment**: The employer shall demonstrate that employees trained in accordance with 29 CFR, Part 1926.1101, shall be exposed to airborne fiber concentrations below the Permissible Exposure Limit (PEL) of less than 0.1 fibers per cubic centimeter of air. However, such as with typical roofing products, product data may demonstrate the material does not release fibers counts under normal circumstances and/or when removed, that exceeds the PEL for an 8-hour Time Weighted Average (TWA) or the excursion limit (EL) of 1.0 fibers per cubic centimeter of air; therefore, personal monitoring may not be required. If the employer has monitored employees on previous similar projects, within twelve (12) months of the current project, and the PEL and EL were not exceeded, then the aforementioned monitoring is not necessarily required.

E. The Contractor shall establish the means for personnel decontamination, such as, but not limited to:

1. **Decontamination procedures requiring personnel entering the work area/performing the work, to don two (2) protective suits.** The first suit shall be a protective suit and shall be HEPA vacuumed, removed and placed in appropriate disposal bags, prior to exiting. The second suit shall be removed and disposed of appropriately upon exiting the work area. The Contractor shall establish hygiene facilities for hand, face, etc.; respiratory protection shall be removed during this process and the respirator cleaned of all visible dust/debris.

2. **Construction of a personal decontamination unit which consists of a shower room for the workers to remove protective clothing and wash hands, face, etc., and a clean room to be used for changing from street clothes into protective clothing and to dry off from decontaminating and donning street clothes at the end of the work shift.**

   a. **A decontamination unit with an equipment, shower and clean room shall be construed as a decontamination unit constructed remote, but in proximity to, the work area(s).** Therefore, personnel shall exit the work area in the same manner as described above.
b. The shower chamber shall be the hygiene facility for all workers involved with the removal of asbestos containing materials.

F. Ensure all HVAC and electrical systems within proximity to the work area are deactivated and/or protected with polyethylene sheeting that is secured airtight with duct tape.

G. Asbestos warning signs and/or tape shall be posted around the perimeter of the exterior work areas for the removal of asbestos containing materials.

H. No asbestos containing material shall be disturbed during preparation activity. The exception is asbestos material required to be cleaned up to complete preparation shall be treated first with an amended water solution and removed in a manner designed to limit or prevent fiber release to the environment.

I. Removal activities shall generate no visible emissions, as enforceable under 40 CFR, Part 61 of the National Emissions Standard for Hazardous Air Pollutants (NESHAPs).

J. All asbestos waste bags and packages shall be labeled with the prescribed federal OSHA warning signs and shall include site specific waste generator information.

1. The Contractor shall provide a fully enclosed, watertight waste container complete with a locking device for storage of all contaminated waste removed from the site. The waste container shall have asbestos warning signs affixed to all sides and doors. A perimeter warning band shall be placed near the trailer location and the exterior route of travel during waste transfer activities.

2. The Contractor shall be responsible for coordination of waste removal immediately upon completion of the project. This is essential in order to obtain a permit for re-occupancy. No payment shall be made to the Contractor until all contaminated waste has been removed from the site and a waste manifest signed by the proper authority is submitted to the Owner.

3. Asbestos waste that may puncture or tear waste bags, and which is required to be bagged for disposal, shall be placed in cardboard boxes, burlap or nylon sacks, or other protective covering, prior to bagging, as necessary to ensure that bags are not punctured or torn during the disposal process. Items that are too large for standard bagging that require bagging for disposal, shall be wrapped in two (2) layers of six (6) mil polyethylene sheeting and sealed with duct tape. All asbestos waste shall be packaged and disposed of in accordance with all applicable local, state and federal regulations and ordinances.

3.2 NOTIFICATIONS, WARNING SIGNS, LABELS AND POSTINGS

A. At the entrance to each work area, the Contractor’s ingress/egress point to the work area and at the waste removal route, and all sides of the waste dumpster/container, post an approximate 20-inch by 14-inch manufactured caution sign displaying the following legend with letter sized and styles of a visibility required by 29 CFR, Part 1926:

```
DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA
```

B. Disposal/Waste Bags/Containers shall be labeled as follows:
DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

AVOID BREATHING AIRBORNE ASBESTOS FIBERS

AND

Asbestos, NA2212, RQ

AND

Class 9 Label

In addition, the Contractor shall also label all disposal bags and/or containers with the name of the waste generator (Owner) and the location from which the waste was generated; all in accordance with the USEPA NESHAPS regulation - 40 CFR, Part 61, Sub-part M.

C. Provide other signs, labels, warnings and posted instructions that are necessary to protect, inform and warn people of the hazard form asbestos exposure. Post in a prominent and convenient place for the workers a copy of the latest applicable regulations from OSHA, USEPA and NIOSH.

D. Post Construction Permits, if applicable, at the entrance to the work area(s).

3.3 NEGATIVE PRESSURE ENCLOSURE CONSTRUCTION

A. The disturbance and or removal of identified friable asbestos containing and/or contaminated materials, such as parget coat shall be accomplished within a negative pressure enclosure. At a minimum, the negative pressure enclosure shall consist of:

1. A tent enclosure consisting of walls, floor, and ceiling constructed to isolate friable ACM abatement work areas from the environment.

2. The enclosure shall be sufficiently sized to permit performance of abatement and waste removal activities.

3. The tent enclosure shall be constructed utilizing two (2) layers of six (6) millimeter polyethylene sheeting for the walls, floor, and ceiling.

4. A fully enclosed lean to “like” tent enclosure, utilizing the existing wall of the building for support shall be acceptable.

   a. Where possible, the tent shall exclude existing windows and doors to the building.

   b. Where unavoidable windows and doors shall be covered with a critical barrier consisting of two (2) independent layers of six (6) mil polyethylene sheeting.

5. A curtain doorway shall be established at the entrance to the work area(s). These doorways shall consist of overlapping layers of polyethylene sheeting in a “Z-formation.” Where the
work area entrance is at a critical barrier, a vertical slit, six (6) feet from the floor, shall be established prior to the installation of the curtain doorway.

B. Work area negative pressure shall be established, at a minimum, at –0.02 inches of water column. High Efficiency Particulate Air (HEPA) filter equipped negative air filtration devices shall be incorporated in the work area and exhaust to the building via flexible duct work. Sufficient negative air filtration devices shall achieve four (4) air exchanges per hour and a work area pressure differential of –0.02 inches of water column. The Contractor shall demonstrate the minimum air exchanges per hour and work area pressure differential via calculation and manometers, respectively, to EC’s representative.

1. The manometer shall be installed in the building with necessary measurement tubing routed to the work area via existing windows.

C. Personnel decontamination units shall be attached airtight to the work area containment(s), where specified or required by code. Otherwise, establish a three-stage remote decontamination unit in close proximity to the work area(s).

D. The Contractor shall utilize fire-rated lumber as necessary to support the negative pressure enclosure.

3.4 EXTERIOR FRIABLE ASBESTOS CONTAINING MATERIAL REMOVAL

A. The removal of friable asbestos containing materials located on the exterior of the building shall be removed inside of a negative pressure enclosure as described in Section 3.3.

B. Products

The Contractor shall be responsible for furnishing all labor, equipment, supplies, ladders, scaffolding, etc., to facilitate the work specified within the negative pressure enclosure.

1. Six (6) mil polyethylene sheeting
2. Spray glue
3. High quality duct tape
4. Garden sprayer
5. Amended water
6. Asbestos warning signs
7. Other equipment deemed necessary by the Contractor
8. High Efficiency Particulate Air (HEPA) filter equipped Vacuum
9. Hand Tools to Parge Coat Removal

C. Execution

1. Once engineering controls, personal decontamination units and work area isolation is established and operational, commence with the removal of the identified asbestos containing materials.

2. Continuously mist the asbestos containing materials with amended water (surfactant in water solution) to minimize airborne particulates/fibers, prior to and during removal.

3. Removal shall be accomplished via hand tools. The use of battery or gas operated tools is prohibited.
4. Asbestos containing material shall be placed in asbestos disposal bags immediately after removal.

5. No visible emissions shall be permitted during the removal of asbestos containing materials, in accordance with United States Environmental Protection Agency, National Emissions Standard for Hazardous Air Pollutants.

6. All surfaces in the work area shall be cleaned of debris and dust by a combination of wet-wiping and HEPA vacuuming. At the conclusion of abatement activities and following IHT approval an Architect of Record approved sealant shall be applied to all abated surfaces.

6. Engineering controls shall remain operational until a satisfactory visual inspection, and where required, final clearance air samples have been collected and the clearance criteria achieved.

3.5 REMOVAL PROCEDURES FOR NON FRIABLE EXTERIOR ASBESTOS CONTAINING MATERIALS (WINDOWS AND DOORS)

A. Where possible the entire window, upper, and lower sashes, shall be removed intact.

B. Products

1. Six (6) mil polyethylene sheeting
2. Spray glue
3. High quality duct tape
4. Garden sprayer
5. Amended water
6. Asbestos warning signs
7. Other equipment deemed necessary by the Contractor
8. High Efficiency Particulate Air (HEPA) filter equipped Vacuum
9. Hand Tools to perform Caulk Removal

C. The work area limits shall be demarcated with Asbestos Caution Tape. The caution tape shall form a barrier that prevents unauthorized personnel from coming within ten feet (10') of the work area. The caution tape barrier shall be installed, at minimum, ten feet (10') away from the perimeter wall of the structure where work is being performed. The barrier shall be installed at a height approximately four feet (4') above the ground.

D. Appropriate warning signs shall be posted at the perimeter of and at all entrances, openings in the caution tape, to the work area.

E. The Contractor shall place a drop cloth consisting of one (1) layer of six (6) mil polyethylene sheeting along the perimeter wall where window or door removal will be performed. The drop cloth shall extend at minimum five feet (5') from the wall. The Contractor shall be responsible affixing the drop cloth in place via weights or stakes.

F. All abatement work described below shall be performed on the drop cloth and inside of the Asbestos Caution Tape line.

G. If necessary, remove fasteners and siding that obscure the caulk.

H. Mist the caulk material with amended water.
I. Using hand tools remove the non-friable ACM in whole sections and dispose of it as asbestos containing waste in double six (6) mil polyethylene waste bags.

**If component (window or door) is associated with building additions proceed to Step J. If the component is associated with the original structure skip to Step N. Existing windows and doors not to be removed from the original structure. The abatement scope of work is limited to removal of asbestos containing window and door frame caulk from the original structure. Components associated with identified asbestos containing caulk/glazing present on building additions shall be removed in their entirety.**

J. Remove remaining fasteners used to secure the window or door to the substrate.

K. Remove the window or door in its entirety.

L. Package the window or door in two (2) layers of polyethylene sheeting and seal all seams with spray-glue and duct tape.

M. Remove and dispose of all caulk utilizing hand tools.

N. Place appropriate warning and generator labels on the packaged ACM and place in the on-site waste container or Contractor’s registered vehicle, in accordance with the requirements set forth in these Technical Specifications.

O. Vacuum all remaining surfaces, inclusive of the interior sill with a High Efficiency Particulate Air (HEPA) filter equipped vacuum.

P. Install adequately sized nominal ½” plywood sheets over the opening left by the removed window with fasteners to be approved by the Project Architect of Record.

3.6 WORK AREA(S) CLEAN UP

A. **First Cleaning:** Carry out a first cleaning of all surfaces of the Work Area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and/or a High Efficiency Particulate Air (HEPA) Filtered Vacuum. (Note: A HEPA vacuum may fail if used with wet material.) Do not perform dry-dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

B. **Second Cleaning:** Carry out a second cleaning of all surfaces in the work area in the same manner as the first cleaning.

C. **Encapsulation of Exposed Surfaces:** Where surfaces have been removed of asbestos containing materials, perform encapsulation of work area surfaces. Apply two (2) individual coats to all exposed surfaces and allow to dry between coats. Assure color is sufficiently distinct to allow for identification of applications.

**ENCAPSULATION PRODUCT SELECTION SHALL BE CLEARED WITH THE ARCHITECT OF RECORD PRIOR TO APPLICATION**

D. **Final Cleaning:** Carry out a Final Cleaning of all surfaces in the Work Area in the same manner as the previous cleaning.
E. **Removal of Work Area Isolation:** After approval of the visual inspection and testing, remove Personnel Decontamination Unit and Critical Barriers. Remove any small quantities of residual material found upon removal of the plastic sheeting with wet wiping, HEPA filtered vacuum cleaners. If significant quantities, as determined by the owner's representative, are found, then the entire area affected shall be decontaminated as specified in Cleaning and Decontamination Procedures.

F. Remove all equipment, materials and debris from the work site. Dispose of all asbestos containing waste material as specified in Disposal of Asbestos Containing Waste Materials.

**PART 4** ASBESTOS WASTE HANDLING AND DISPOSAL

4.1 **SUMMARY**

A. Disposal bags shall be six (6) millimeter, leak tight, and labeled in accordance with OSHA, NESHAPS, and the United States Department of Transportation (USDOT) regulations.

B. Load all asbestos containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one (1) of the following:

1. Two (2), six (6) mil disposal bags, or,
2. Two (2), six (6) mil disposal bags and a fiberboard drum, or
3. Two (2), six (6) mil disposal bags and sealed steel drum.

C. Two (2) layers of six (6) mil polyethylene sheeting shall be utilized for wrapping large components not suited for disposal bags or drums.

D. Duct tape shall be used to seal disposal bags and wrapped components.

E. The Contractor’s vehicle and/or dumpster shall be lined with a critical barrier. The Contractor’s vehicle and/or dumpster utilized to transport the asbestos waste off-site, and the Waste Hauler shall be licensed by the New Jersey Department of Environmental Protection.

F. Maintain records of waste shipments in accordance with NESHAPS 40 CFR, Part 61, Section 61.150, (d) 1-5 and (e).

G. Notify the USEPA ID #27 approved landfill within 10-days prior to transportation of the asbestos containing waste to the landfill. Provide the name and address of the landfill. Retain manifest from the landfill for all materials disposed of. At the completion of asbestos abatement, forward all manifests to the Owner.

H. On-site activities shall not be considered complete until all waste is off-site, upon demobilization of the work area(s), and after receipt of satisfactory final clearance air sample results.

**PART 5** AIR MONITORING

5.1 **SUMMARY**

A. Air monitoring shall be performed to demonstrate the effectiveness of engineering controls and methods for the removal of asbestos containing materials with respect to the potential release of asbestos fibers, and the clearance of the work area(s) for re-occupancy.
1. This Section describes air monitoring to verify that the building and the outside environment remains uncontaminated.

2. This Section also sets forth work area clearance criterion.

B. AIR MONITORING REQUIRED BY OSHA IS WORK OF THE CONTRACTOR AND IS NOT COVERED IN THIS SECTION.

C. Daily air monitoring shall be completed along the work area perimeter. Sample collection and analysis shall be in accordance with the National Institute of Occupational Safety and Health (NIOSH) method #7400, most recent revision, by Phase Contrast Microscopy (PCM). The acceptable airborne fiber concentrations for this type of analysis shall be less than 0.01 fibers per cubic centimeter (f/cc) of air.

D. Final Clearance Air Monitoring

1. Final clearance air samples shall be collected at the completion of the asbestos abatement activities, upon receipt of a satisfactory Clean-up Inspection, in writing by the Environmental Consultant to the Contractor.

2. Engineering controls, critical barriers and the decontamination unit shall remain during final clearance air sampling.

3. A minimum of five (5) samples will be taken from the work area(s) and analyzed in accordance with the method set forth in the AHERA Regulation 40 CFR, Part 763, Appendix A, and N.J.A.C. 8:60 and 12:120.

   a. For work area(s) where more than 260 LF/160 SF of asbestos containing materials have been removed, final clearance samples shall be collected/analyzed utilizing Transmission Electron Microscopy (TEM).

   b. For work area(s) where less than 260 LF/160 SF of asbestos containing materials have been removed, final clearance samples shall be collected/analyzed utilizing Phase Contrast Microscopy (PCM).

   c. TEM samples shall be analyzed at a laboratory accredited by the American Industrial Hygiene Association, participating in the National Voluntary Laboratory Accreditation Program (NVLAP). Analytical results shall be available to the Owner’s representative within six (6) hours upon receipt by the laboratory.

   d. PCM samples shall be analyzed in accordance with the most recent revision to NIOSH method 7400.

4. Acceptable Clearance Criteria for work area(s) demobilization and re-occupancy shall be as follows:

   a. TEM: less than 70 Structures per millimeter squared.

   b. PCM: less than 0.01 fibers per cubic centimeter.
PART 6  PROJECT COMPLETION

6.1  FINAL INSPECTION AND CLEARANCE AIR MONITORING

A. The Industrial Hygiene Technician shall perform a final inspection and conduct final clearance air monitoring of the work area in accordance with the State of New Jersey, Department of Community Affairs, requirements. If analytical results are obtained that are higher than the allowable threshold the Contractor shall re-clean the work area and the Owner’s ASCM Firm shall re-test the area. This sequence shall be repeated until the final test results are acceptable.

1. The Contractor shall be financially responsible for additional cleaning, final clearance air sampling and analysis, at no cost to the Owner.

B. Upon receipt of acceptable final air tests, the Contractor shall demobilize all critical and separation barriers, decontamination unit, and engineering controls, from the abatement area. All waste containers shall be off-site and on route to an USEPA ID #27 approved landfill for final disposal. The Certificate of Completion will not be issued until all waste containers are off site.

C. The Owner’s ASCM Firm, represented by the on-site IHT, will perform a final visual inspection of the abatement work area, to document the project has been completed in accordance with these Technical Specifications and all applicable local, state and federal regulations.

END OF SECTION 028200
REPORT

Environmental Building Assessment
Dr. James Still Office Stabilization Project
209 Church Road
Medford, New Jersey 08055

NJ DPMC Project #: P1200-00

Prepared For:
Historic Building Architects, LLC
312 W. State Street
Trenton, New Jersey 08618

Prepared By:
Environmental Connection, Inc.
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Trenton, New Jersey 08608

November 20, 2019
EC Project #: 19302-01
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Section 1.0 Executive Summary

Environmental Connection, Inc., (EC) was contracted by Historic Building Architects, LLC to conduct an Environmental Building Assessment at the former office of Dr. James Still located at 209 Church Road in Medford, New Jersey. The assessment included a limited inspection of the building for suspect Asbestos Containing Materials (ACMs), a screening for Lead Based Paint (LBP) and bulk sampling of suspect Polychlorinated Biphenyl (PCB) containing materials. The purpose of the assessment was to identify hazardous building materials that may be impacted by planned building stabilization activities. The assessment was performed by Mr. Jordan Reed and Mr. Brian Brill, both of whom are United States Environmental Protection Agency (USEPA) accredited Asbestos Building Inspectors. Mr. Reed is a New Jersey Department of Health certified Lead Inspector/Risk Assessor. The assessment was conducted on November 4, 2019.

During the ACM inspection, EC collected 72 samples of 34 suspect asbestos containing materials. The samples were submitted to an accredited laboratory for analysis via Polarized Light Microscopy (PLM) and where required, Transmission Electron Microscopy (TEM) to determine the presence of asbestos content. Six (6) of the materials sampled were found to contain greater than 1% asbestos content by weight, the threshold established by the USEPA for classification as an asbestos containing material. Analysis revealed one (1) material that contains <1% asbestos content by weight. Materials containing less than <1% asbestos content are classified as Trace Asbestos Containing Materials. Suspect materials not likely to be impacted by the planned stabilization project were catalogued and quantified but not sampled during the inspection. These materials are classified as assumed asbestos containing materials. Assumed asbestos containing materials should be treated as asbestos containing materials until sampling by a licensed building inspector and analysis by an accredited laboratory establish otherwise.

EC conducted a screening of the property for LBP utilizing a handheld X-Ray Fluorescence (XRF) Lead in Paint Analyzer. Multiple interior and exterior lead-based paint covered components were identified during the assessment. EC also identified and collected samples five (5) suspect Polychlorinated biphenyl (PCB) containing materials. Laboratory analysis revealed that the suspect materials identified were “none detected” for PCBs.

In addition to the specified assessment activities, the visual inspection identified an above ground heating oil tank in the basement, with staining around the base of the tank.

The following sections document the methodology and findings of the assessment.

Section 2.0 Asbestos Containing Material Inspection

Asbestos is a naturally occurring mineral categorized into two (2) groups, Serpentine and Amphibole, based on morphology. The Serpentine group is comprised of Chrysotile asbestos, the Amphibole group consists of Amosite, Crocidolite, Tremolite, Anthophyllite, and other forms of asbestos. Asbestos was utilized in more than 3,600 products for its fire resistance, tensile strength, inertness, chemical binding properties, and durability. Due to enhanced durability, asbestos containing products remain present in the built environment decades after installation. Public awareness of the hazards associated with airborne asbestos fibers increased through the 1970s and culminated in the adoption of the Asbestos Hazard Emergency Response Act (AHERA), signed into law (40 CFR, Part 763) in 1986. Briefly, AHERA
established Federal regulations pertaining to inspections to identify asbestos containing materials, appropriate response actions, and Asbestos Management Plan requirements.

The asbestos containing material inspection was performed in accordance with AHERA and encompassed all accessible interior and exterior locations. Samples of each suspect asbestos containing material likely to be impacted by the planned stabilization project were collected in sufficient quantities as mandated by 40 CFR, Part 763.86.

All samples were submitted to EMSL Analytical, Inc., located in Cinnaminson, New Jersey for analysis utilizing Polarized Light Microscopy (PLM) via EPA Method 600/R-93/116. EMSL Analytical, Inc., is accredited by the American Industrial Hygiene Association (AIHA) and participates in the National Voluntary Laboratory Accreditation Program (NVLAP).

Emergency Regulatory Adoptions to New Jersey Administrative Codes (N.J.A.C.) 8:60 and 12:120, Volume 38, Issue 11, dated June 5, 2006, mandate that non-friable organically bound (NOB) suspect asbestos containing materials be analyzed via Transmission Electron Microscopy (TEM) analysis when PLM analysis yields results of less than 1% asbestos by weight or “None Detected” for asbestos fibers. TEM uses electron imaging to identify asbestos fibers at a higher magnification.

Results for PLM and TEM analysis methods are reported in percentage by weight. According to the USEPA, materials containing greater than 1% asbestos content by weight are classified as asbestos containing materials. Materials containing <1% asbestos content by weight are classified as “Trace” asbestos containing materials. Trace asbestos containing materials are not recognized by the USEPA but are regulated by the United States Department of Labor Occupational Safety and Health Administration (OSHA). The following table summarizes the analytical results.

<table>
<thead>
<tr>
<th>ID #</th>
<th>Material</th>
<th>PLM Results</th>
<th>TEM Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Mortar Associated with Chimney</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>02</td>
<td>Fireboard Associated with Aluminum Siding</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>03</td>
<td>Paper Associated with Aluminum Siding and Fiberboard</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>04</td>
<td>Parge Coat Located at Building Foundation Side Addition</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>05</td>
<td>Parge Coat Located at Original Structure Foundation Top Layer</td>
<td>2% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>05A</td>
<td>Parge Coat Located at Original Structure Foundation Bottom Layer</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>06</td>
<td>Caulk Associated with Original Structure Windows</td>
<td>2% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>07</td>
<td>Glazing Associated with Original Structure Windows</td>
<td>None Detected</td>
<td>None Detected</td>
</tr>
<tr>
<td>09</td>
<td>Glazing Associated with Side Addition Windows</td>
<td>3% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>Adhesive Associated with Rear Porch Windows</td>
<td>None Detected</td>
<td>3% Anthophyllite</td>
</tr>
<tr>
<td>11</td>
<td>Caulk Associated with Front Door Frame</td>
<td>4% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>12</td>
<td>Caulk Associated with Rear Porch Door Frame</td>
<td>4% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>13</td>
<td>Plaster Associated with Wire Mesh on Front Porch</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>Interior Plaster Rough and</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>14A</td>
<td>Interior Plaster Skim Coat</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Brown Textured Coating Associated with Wood Siding</td>
<td>None Detected</td>
<td>None Detected</td>
</tr>
</tbody>
</table>
Table 1 – ACM Sampling Analytical Results Summary
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>ID #</th>
<th>Material</th>
<th>PLM Results</th>
<th>TEM Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Sheetrock</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>16A</td>
<td>Joint Compound Associated with Sheetrock</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>2’ x 4’ Fiberglass Ceiling Tile</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>17A</td>
<td>Glue Associated with 2’ x 4’ Fiberglass Ceiling Tile</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Patterned Linoleum</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>18A</td>
<td>Glue Associated with Patterned Linoleum</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>2’ x 4’ Fissure and Hole Ceiling Tile</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>20</td>
<td>Gray Leveler*</td>
<td>&lt;1% Chrysotile</td>
<td>N/A</td>
</tr>
<tr>
<td>21</td>
<td>Pressboard Behind Wood Paneling Inside Addition</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>22</td>
<td>White Peel and Stick Tile</td>
<td>Assumed</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Basement Plaster Ceiling</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>24</td>
<td>Basement Sheetrock Ceiling</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>25</td>
<td>Flue Pack</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>26</td>
<td>Electric Wire Wrap</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>27</td>
<td>Built-Up Roofing Shingle</td>
<td>None Detected</td>
<td>None Detected</td>
</tr>
<tr>
<td>27A</td>
<td>Built-Up Roofing Tar Paper</td>
<td>None Detected</td>
<td>None Detected</td>
</tr>
<tr>
<td>28</td>
<td>Mortar Associated with Stone Foundation</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
<tr>
<td>29</td>
<td>Ceiling Gypsum Board</td>
<td>None Detected</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* - Trace Asbestos Containing Material | N/A – Not Applicable

Six (6) of the materials sampled were found to contain greater than 1% asbestos content by weight. One (1) trace asbestos containing material, gray floor leveler, was identified during the assessment. Trace materials are not considered Asbestos Containing Materials per the USEPA definition. However, in accordance with Part 1926.1101 (OSHA Asbestos Standard), EC recommends that engineering controls be employed during removal of these materials to avoid potential asbestos fiber release. EC’s inspectors quantified each suspect material as part of the inspection. The location and approximate total quantity of identified asbestos containing materials are included in Table 2 below. The location and quantity of trace asbestos containing materials are included in Table 3.

Table 2 - Asbestos Containing Material Quantity
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parge Coat Located at Original Structure Foundation Top Layer</td>
<td>Exterior at Foundation</td>
<td>544 SF</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>544 SF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caulk Associated with Original Structure Windows</td>
<td>Exterior 1st Floor and Basement Windows</td>
<td>150 LF</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>150 LF</td>
</tr>
</tbody>
</table>
Table 2 - Asbestos Containing Material Quantity
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glazing Associated with Side Addition Windows</td>
<td>Exterior of Side Addition</td>
<td>808 SF</td>
</tr>
<tr>
<td>Adhesive Associated with Rear Porch Windows</td>
<td>Rear Porch behind Window Frames</td>
<td>64 LF</td>
</tr>
<tr>
<td>Caulk Associated with Main Structure Front Door Frame</td>
<td>Exterior Front Door &amp; Front Porch Aluminum Siding</td>
<td>23 LF</td>
</tr>
<tr>
<td>Caulk Associated with Rear Porch Door Frame</td>
<td>Addition Kitchen Under Sheet</td>
<td>18 LF</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>808 SF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>64 SF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>23 LF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>18 LF</strong></td>
</tr>
</tbody>
</table>

LF – Linear Feet | SF – Square Feet

Table 3 – Trace Asbestos Containing Material Quantity
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray Floor Leveler</td>
<td>Side Addition Floor on Wood Substrate</td>
<td>60 SF</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>60 SF</strong></td>
</tr>
</tbody>
</table>

SF – Square Feet

**Section 3.0 Lead Based Paint Screening**

Lead based paint (LBP) was used extensively before 1960 because it was more durable than other paint products available at the time. Due to the potential hazards of lead in paint, especially to children, lead-based paint was banned in 1977.

The United States Department of Housing and Urban Development (HUD), USEPA, and the State of New Jersey define lead-based paint as a coating which contains greater than 0.5% lead by weight or greater than 1.0 milligram of lead per square centimeter (mg/cm²). The disturbance or dislocation of lead-based paint or lead containing paint from building materials may cause lead dust to be released into the building’s atmosphere, thereby creating a potential health hazard to workers and/or building occupants. To mitigate health hazards, demolition and other construction related work that impacts lead-based paint is regulated by the United States Department of Labor, Occupational Safety and Health Administration, (OSHA) under regulation, 29 CFR, Part 1926.62, “Lead in Construction Standard”, which defines construction work as work for alteration and/or repair, including demolition or salvage of structures, removal or encapsulation of materials containing lead.
Unlike HUD, the OSHA has not established a threshold for lead containing material, meaning any surface coating with a detectable lead concentration is defined as a “lead containing” material by OSHA.

EC utilized a portable X-Ray Fluorescence (XRF) device manufactured by Heuresis, Inc., of Burlington, Massachusetts (Serial #2320), to detect the presence of lead within the paint films and other finished surfaces (stains, varnishes, and shellacs). The device bombards the testing surface with X-ray energy, generated by a radioactive source. The energy excites electrons in the testing surface causing them to emit X-Ray energy. The X-Ray energy emitted by the electrons is analyzed by the XRF device. Based on analysis of the X-ray energy emitted by the electrons, the device is able to determine the presence and concentration of an element, in this case Lead, in the testing surface. Results are reported in milligrams per square centimeter. New Jersey Administrative Code (N.J.A.C.) 5:17, defines any film which contains greater than 1.0 milligram of lead per square centimeter (mg/cm²) as lead-based paint.

EC performed the screening to characterize interior and exterior surfaces and components to determine if any observed paints contain lead. EC grouped similar building components with the like paint histories for testing purposes. Positive lead-based paint covered components and surfaces are summarized in Table 4 below. The XRF field data sheet documenting all measurements collected is included in Appendix II.

<table>
<thead>
<tr>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exterior</strong></td>
<td>Front Door Frame</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Headers</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Sills</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Frames</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Clapboard Siding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Vertical Wood Plank Siding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Decorative Exterior Molding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Roof Eave associated with Molding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Roof Fascia associated with Molding</td>
<td>Wood</td>
</tr>
<tr>
<td><strong>Rear Porch</strong></td>
<td>Walls</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Wood Column</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Frame</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Sill</td>
<td>Wood</td>
</tr>
<tr>
<td><strong>Kitchen</strong></td>
<td>Floor</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Walls</td>
<td>Plaster</td>
</tr>
<tr>
<td></td>
<td>Baseboard</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Door Frame</td>
<td>Wood</td>
</tr>
<tr>
<td><strong>Bedroom adj. to Kitchen</strong></td>
<td>Walls</td>
<td>Plaster &amp; Wood Panels</td>
</tr>
<tr>
<td></td>
<td>Window Frame</td>
<td>Wood</td>
</tr>
</tbody>
</table>
Table 4 – Lead Based Paint Screening Summary
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side Addition</td>
<td>Bathtub Glazing</td>
<td>Metal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hall</td>
<td>Closet Door</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Walls</td>
<td>Plaster</td>
</tr>
<tr>
<td>Front Room</td>
<td>Walls</td>
<td>Plaster &amp; Sheetrock</td>
</tr>
<tr>
<td></td>
<td>Baseboards</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>Plaster</td>
</tr>
<tr>
<td></td>
<td>Door Frame</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Door Transom</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Frame</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Apron</td>
<td>Wood</td>
</tr>
<tr>
<td>Basement</td>
<td>Baseboard in Stairwell</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window</td>
<td>Wood</td>
</tr>
</tbody>
</table>

All remaining interior and exterior surfaces evaluated were determined not to contain lead. OSHA’S “Lead Safe Work Practices in Construction” standard applies to all renovation activities that may impact materials classified as “lead based” or “lead containing”.

Section 4.0 Polychlorinated Biphenyl Inspection

PCBs were widely utilized between 1929 and 1977 in the United States as coolants and lubricants in electrical equipment (i.e., capacitors, transformers, light ballasts), plasticizers, surface coatings, inks, adhesives, flame retardants, pesticides, paints and carbonless duplicating paper, for their insulating properties, chemical stability and relative non-flammability.

PCB products were banned in the United States in 1977. However, many PCB containing products remain in service to this day. The United States Environmental Protection Agency (USEPA) has classified PCBs as a possible human carcinogen.

PCBs in caulk have become a prevalent regulatory issue within the United States, prompted by studies conducted in Finland. The Finland investigation revealed a correlation between PCBs in caulk and that of airborne PCBs and PCBs in blood of construction workers coming in contact with such materials. The United States Environmental Protection Agency (USEPA) regulates disposal of caulking that contains greater than 50 parts per million (ppm) or 50 milligrams per kilogram (mg/Kg) under the Toxic Substances Control Act (TSCA) and PCB regulation, 40 CFR, Part 761.

EC inspected the office for the presence of caulk and glazing suspected of containing Polychlorinated Biphenyls (PCBs). EC collected samples of suspect PCB containing caulks utilizing a razor knife. A minimum of one (1) gram of material was collected and placed directly into a sampling jar. The sample was then labeled and submitted to the laboratory for analysis. Samples were analyzed by EMSL.
Analytical, Inc., of Cinnaminson, New Jersey, in accordance with USEPA SW-846 Method 8082. Detailed PCB sampling laboratory analytical reports and associated Chains of Custody documentation are included in Appendix III.

None of the samples contained PCBs in concentrations greater than the 50 parts per million threshold established by the USEPA. The reporting limit indicates the lowest detectable concentration for the analysis method utilized. The reporting limit is determined by the original mass of the sample and is therefore a dependent variable of the samples mass. Aroclor was the proprietary/commercial name given to PCB containing mixtures. The mixtures were further defined by their unique composition. The four (4) digit number following Aroclor refers to the composition of the mixture. The first two digits denote the number of carbon atoms present in the two phenyl rings. The second two digits indicate the mass percentage of Chlorine atoms in the mixture.

<table>
<thead>
<tr>
<th>Material</th>
<th>Analyte</th>
<th>Reporting Limit</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Structure Door Caulk</td>
<td>Aroclor 1016</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1221</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1232</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1242</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1248</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1254</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1260</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1262</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1268</td>
<td>0.96 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td>Original Structure Window Caulk</td>
<td>Aroclor 1016</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1221</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1232</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1242</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1248</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1254</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1260</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1262</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1268</td>
<td>0.56 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td>Original Structure Window Glazing</td>
<td>Aroclor 1016</td>
<td>0.97 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1221</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1232</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1242</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1248</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1254</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1260</td>
<td>0.97 mg/Kg</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1262</td>
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</tr>
<tr>
<td></td>
<td>Aroclor 1268</td>
<td>0.97 mg/Kg</td>
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</tr>
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</table>
Table 5 – Polychlorinated Biphenyl Analytical Results
Dr. James Still Office
209 Church Road
Medford, New Jersey 08055

<table>
<thead>
<tr>
<th>Material</th>
<th>Analyte</th>
<th>Reporting Limit</th>
<th>Results</th>
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<tbody>
<tr>
<td>Side Addition Window Glazing</td>
<td>Aroclor 1016</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1221</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1232</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1242</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1248</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1254</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1260</td>
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<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1262</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1268</td>
<td>0.87 mg/Kg</td>
<td>None Detected</td>
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<tr>
<td>Caulk associated with Rear Porch Exterior Door Frame</td>
<td>Aroclor 1016</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1221</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1232</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
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<td></td>
<td>Aroclor 1242</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1248</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1254</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1260</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1262</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td>Aroclor 1268</td>
<td>0.73 mg/Kg</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

Section 5.0  Project Limitations/Disclaimers

The Client should be advised that quantities referenced herein are estimates/approximations. EC made every effort, inclusive of selective demolition, to access and sample all suspect hazardous materials that may be impacted by Stabilization Project activities. Where present, these materials were sampled in accordance with applicable Federal and State Regulations. EC does not claim that hidden materials may not still be present and inaccessible on, within, or beneath the various building components. EC does, however, assure that due diligence was observed in performing sampling as generally recognized by industry practices.

Should a previously unidentified suspect hazardous material be uncovered during demolition, activities should cease until the composition of the material is determined through sampling and analysis in accordance with 40 CFR, Part 763, and N.J.A.C. 8:60 and 12:120 for asbestos, inclusive of utilizing USEPA accredited Asbestos Building Inspectors to collect the appropriate number of samples and an AIHA accredited laboratory that is a NVLAP participant.

Section 6.0  Conclusions

The environmental assessment performed at 209 Church Road in Medford, New Jersey revealed six (6) asbestos containing materials, one (1) trace asbestos containing material, and multiple lead-based paint covered components. Analysis revealed that the five (5) identified suspect PCB containing materials
were “none detected” for PCBs. EC also observed the Heating Oil Tank in the basement with staining at the base of the tank.

Section 7.0 Recommendations

Based on the results of the environmental assessment and the conclusions listed above, EC offers the following recommendations.

- Employ a USEPA accredited Asbestos Project Designer to develop Plans and Specifications to abate identified asbestos containing materials that may be impacted by the Stabilization Project Scope of Work.

- Utilize a New Jersey Department of Labor licensed Asbestos Contractor to abate the asbestos containing materials prior to stabilization activities in accordance with federal and New Jersey requirements for asbestos abatement in public buildings.

- Perform air monitoring in accordance with federal and New Jersey requirements for asbestos abatement in public buildings. EC recommends daily air monitoring during abatement activities in addition to clearance air monitoring at the completion of abatement.

- One (1) material containing trace amounts of asbestos content was identified by the assessment. Trace asbestos containing materials should be removed in accordance with the OSHA Asbestos in Construction Standard (29 CFR, Part 1926.1101) and the subsequent November 24, 2003, clarification.

- Utilize Lead Safe Work Practices as defined by OSHA during the disturbance of identified lead paint covered components. Representative samples of the lead containing materials should be analyzed via Toxic Characteristic Leachate Procedure (TCLP), to determine the appropriate waste disposal requirements.

- Engage a Certified Sub-Surface Evaluator and/or Licensed Site Remediation Professional (LSRP) to investigate the Heating Oil Tank in the basement and provide recommendations for remediation.

Should you have any questions or require additional information, please contact the undersigned at your convenience.

Respectfully Submitted:
ENVIRONMENTAL CONNECTION, INC.

[Signature]
Jordan Reed
Project Manager
APPENDIX I

ASBESTOS CONTAINING MATERIALS INSPECTION DATA
Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Sample Description</th>
<th>Lab Sample ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-BB110419</td>
<td>Exterior/Mortar associated with Chimney</td>
<td>041932102-0001</td>
</tr>
<tr>
<td>02-BB110419</td>
<td>Exterior/Mortar associated with Chimney</td>
<td>041932102-0002</td>
</tr>
<tr>
<td>03-BB110419</td>
<td>Exterior/Fiberboard associated with Aluminum Siding</td>
<td>041932102-0003</td>
</tr>
<tr>
<td>04-BB110419</td>
<td>Exterior/Fiberboard associated with Aluminum Siding</td>
<td>041932102-0004</td>
</tr>
<tr>
<td>05-BB110419</td>
<td>Exterior/Paper associated with Aluminum Siding</td>
<td>041932102-0005</td>
</tr>
<tr>
<td>06-BB110419</td>
<td>Exterior/Paper associated with Aluminum Siding</td>
<td>041932102-0006</td>
</tr>
<tr>
<td>07-BB110419</td>
<td>Side Addition Foundation Exterior/Addition Parge Coating</td>
<td>041932102-0007</td>
</tr>
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<table>
<thead>
<tr>
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<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos</th>
<th>Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
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<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/06/2019</td>
<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Brown</td>
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<td>10.0%</td>
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<tr>
<td></td>
<td>11/06/2019</td>
<td>Brown</td>
<td>95.0%</td>
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<td>None Detected</td>
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<tr>
<td></td>
<td>11/05/2019</td>
<td>Brown/Black/Silver</td>
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<tr>
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<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
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</table>
Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
<thead>
<tr>
<th>Client Sample ID</th>
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<th>Sample Description</th>
<th>Analyzed Date</th>
<th>Color</th>
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<th>Fibrous</th>
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<th>Asbestos</th>
<th>Comment</th>
<th>Color</th>
<th>Fibrous</th>
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</table>
| 08-BB110419      | 041932102-0008| Exterior Side Addition Foundation/Addition Parge Coating | 11/05/2019    | Gray  | 0.0%         | 100.0%  | None Detected
| 09-BB110419      | 041932102-0009| Exterior Side Addition Foundation/Addition Parge Coating | 11/06/2019    | Gray   | 0.0%         | 100.0%  | None Detected
| 10-BB110419      | 041932102-0010| Exterior Original Building Foundation/Original Parge Coating Top Layer | 11/05/2019    | Gray/White | 0.0%         | 100.0%  | None Detected
| 10A-BB110419     | 041932102-0010A| Exterior Original Building Foundation/Original Parge Coating Bottom Layer | 11/05/2019    | Beige  | 0.0%         | 100.0%  | None Detected
| 11-BB110419      | 041932102-0011| Exterior Original Building Foundation/Original Parge Coating Top Layer | 11/05/2019    | Gray/White | 0.0%         | 100.0%  | None Detected
| 11A-BB110419     | 041932102-0011A| Exterior Original Building Foundation/Original Parge Coating Bottom Layer | 11/05/2019    | Beige  | 0.0%         | 100.0%  | None Detected
| 12-BB110419      | 041932102-0012| Exterior Original Building Foundation/Original Parge Coating Top Layer | 11/06/2019    | Gray/White | 0.0%         | 98.0%   | 2% Chrysotile |
| 12A-BB110419     | 041932102-0012A| Exterior Original Building Foundation/Original Parge Coating Bottom Layer | 11/06/2019    | Beige  | 0.0%         | 100.0%  | None Detected

### Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

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<tr>
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<td><strong>Sample Description:</strong></td>
<td>Exterior Original Building/Caulk associated with Front Door</td>
<td><strong>Non-Fibrous Asbestos</strong></td>
<td>Positive Stop (Not Analyzed)</td>
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<th>Comment</th>
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<tbody>
<tr>
<td><strong>Sample Description:</strong></td>
<td>Exterior Original Building/Caulk associated with Original Building Windows</td>
<td><strong>Non-Fibrous Asbestos</strong></td>
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<th>Asbestos</th>
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<td>Exterior Original Building/Caulk associated with Original Building Windows</td>
<td><strong>Non-Fibrous Asbestos</strong></td>
<td>Positive Stop (Not Analyzed)</td>
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<th>Color</th>
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<tr>
<td><strong>Sample Description:</strong></td>
<td>Exterior Original Building/Glazing associated with Original Building Windows</td>
<td><strong>Non-Fibrous Asbestos</strong></td>
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<table>
<thead>
<tr>
<th>Test</th>
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<th>Color</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
<th>Comment</th>
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<td><strong>Non-Fibrous Asbestos</strong></td>
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<table>
<thead>
<tr>
<th>Test</th>
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<th>Color</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
<th>Comment</th>
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<td>100.0%</td>
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<th>Client Sample ID:</th>
<th>19-BB110419-Plaster Rough Coat</th>
<th>Lab Sample ID:</th>
<th>041932102-0019</th>
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</thead>
<tbody>
<tr>
<td><strong>Sample Description:</strong></td>
<td>Exterior Front Porch/Plaster Rough Coat</td>
<td><strong>Non-Fibrous Asbestos</strong></td>
<td>None Detected</td>
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</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray</td>
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<td>100.0%</td>
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<td>20-BB110419-Plaster Rough Coat</td>
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**Test Description:** Exterior Front Porch/Plaster Rough Coat

<table>
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<tr>
<th>Test</th>
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<th>Color</th>
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<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
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<td>PLM</td>
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<td>0.0%</td>
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<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
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</thead>
<tbody>
<tr>
<td>20A-BB110419-Skim Coat</td>
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**Test Description:** Exterior Front Porch/Skim Coat

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<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
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</thead>
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<table>
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</thead>
<tbody>
<tr>
<td>21-BB110419-Plaster Rough Coat</td>
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**Test Description:** Exterior Front Porch/Plaster Rough Coat

<table>
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<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
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<tbody>
<tr>
<td>PLM</td>
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<td>Gray</td>
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<td>100.0%</td>
<td>None Detected</td>
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<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
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<td>041932102-0021A</td>
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**Test Description:** Exterior Front Porch/Skim Coat

<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td></td>
<td></td>
<td></td>
<td>Layer Not Present</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-BB110419</td>
<td>041932102-0022</td>
</tr>
</tbody>
</table>

**Test Description:** Exterior Rear Porch/Caulk associated with Rear Porch Door Frame

<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>White</td>
<td>0.0%</td>
<td>96.0%</td>
<td>4% Chrysotile</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-BB110419</td>
<td>041932102-0023</td>
</tr>
</tbody>
</table>

**Test Description:** Exterior Rear Porch/Caulk associated with Rear Porch Door Frame

<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>White</td>
<td>2.0%</td>
<td>98.0%</td>
<td>None Detected</td>
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<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEM Grav.</td>
<td>11/10/2019</td>
<td>White</td>
<td>0.0%</td>
<td>97.0%</td>
<td>3.0% Anthophyllite</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-BB110419</td>
<td>041932102-0024</td>
</tr>
</tbody>
</table>

**Test Description:** Exterior Rear Porch/Adhesive associated with Rear Porch Windows

<table>
<thead>
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<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>White</td>
<td>0.0%</td>
<td>97.0%</td>
<td>None Detected</td>
<td></td>
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<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEM Grav.</td>
<td>11/10/2019</td>
<td>White</td>
<td>0.0%</td>
<td>97.0%</td>
<td>3.0% Anthophyllite</td>
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<table>
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</thead>
<tbody>
<tr>
<td>25-BB110419</td>
<td>041932102-0025</td>
</tr>
</tbody>
</table>

**Test Description:** Exterior Rear Porch/Adhesive associated with Rear Porch Windows

<table>
<thead>
<tr>
<th>Test</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
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<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>White</td>
<td>3.0%</td>
<td>97.0%</td>
<td>None Detected</td>
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Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

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<th>Sample Description:</th>
</tr>
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<tbody>
<tr>
<td>26-BB110419</td>
<td>041932102-0026</td>
<td>Exterior Original Building/Brown Textured Siding</td>
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</tbody>
</table>

<table>
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<tr>
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<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Brown/White</td>
<td>5.0%</td>
<td>95.0%</td>
<td>None Detected</td>
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<table>
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<th>Lab Sample ID:</th>
<th>Sample Description:</th>
</tr>
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<tbody>
<tr>
<td>27-BB110419</td>
<td>041932102-0027</td>
<td>Exterior Original Building/Brown Textured Siding</td>
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<table>
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<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Brown/White</td>
<td>5.0%</td>
<td>95.0%</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
<th>Sample Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-BB110419</td>
<td>041932102-0028</td>
<td>Exterior Original Building/Brown Textured Siding</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Brown/White</td>
<td>4.0%</td>
<td>96.0%</td>
<td>None Detected</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>Lab Sample ID:</th>
<th>Sample Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-BB110419</td>
<td>041932102-0029</td>
<td>Exterior Original Building/Brown Textured Siding</td>
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<table>
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<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Brown/White</td>
<td>4.0%</td>
<td>96.0%</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Lab Sample ID:</th>
<th>Sample Description:</th>
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</thead>
<tbody>
<tr>
<td>30-BB110419</td>
<td>041932102-0030</td>
<td>Exterior Original Building/Brown Textured Siding</td>
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</tbody>
</table>

<table>
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<tr>
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<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Brown/White</td>
<td>90.0%</td>
<td>10.0%</td>
<td>None Detected</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
<th>Sample Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-BB110419</td>
<td>041932102-0031</td>
<td>Basement/Electric Wire Wrap</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Brown</td>
<td>85.0%</td>
<td>15.0%</td>
<td>None Detected</td>
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</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
<th>Sample Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-BB110419</td>
<td>041932102-0032</td>
<td>Basement/Electric Wire Wrap</td>
</tr>
</tbody>
</table>

<table>
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<th>Color</th>
<th>Non-Asbestos Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Tan/White</td>
<td>75.0%</td>
<td>25.0%</td>
<td>None Detected</td>
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</table>
Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
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<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
<th>Sample Description:</th>
<th>Non-Asbestos Analyzed</th>
<th>Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34-BB110419</td>
<td>Kitchen/2x4 Fissure Hole Ceiling Tile</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/06/2019</td>
<td>Tan/White</td>
<td>80.0%</td>
<td>20.0%</td>
<td>None Detected</td>
<td></td>
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</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35-BB110419</td>
<td>Side Addition/Gray Leveling Compound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>36-BB110419</td>
<td>Side Addition/Gray Leveling Compound</td>
<td></td>
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</tr>
<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Gray/Black</td>
<td>0.0%</td>
<td>100.0%</td>
<td>&lt;1% Chrysotile</td>
<td>Result includes a small amount of inseparable attached material.</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>37-BB110419</td>
<td>Side Addition/Pressboard Wall Panel</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Brown</td>
<td>90.0%</td>
<td>10.0%</td>
<td>None Detected</td>
<td></td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>38-BB110419</td>
<td>Side Addition/Pressboard Wall Panel</td>
<td></td>
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</tr>
<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/06/2019</td>
<td>Brown</td>
<td>95.0%</td>
<td>5.0%</td>
<td>None Detected</td>
<td></td>
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<tr>
<td></td>
<td>39-BB110419</td>
<td>Basement/Plaster Ceiling</td>
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<tr>
<td>TEST</td>
<td>Analyzed Date</td>
<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Gray</td>
<td>5.0%</td>
<td>95.0%</td>
<td>None Detected</td>
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<tr>
<td></td>
<td>40-BB110419</td>
<td>Basement/Plaster Ceiling</td>
<td></td>
<td></td>
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<td>TEST</td>
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<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/05/2019</td>
<td>Gray</td>
<td>5.0%</td>
<td>95.0%</td>
<td>None Detected</td>
<td></td>
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<tr>
<td></td>
<td>41-BB110419</td>
<td>Basement/Plaster Ceiling</td>
<td></td>
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<td>TEST</td>
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<td>Color</td>
<td>Fibrous</td>
<td></td>
<td></td>
<td>Asbestos</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>11/06/2019</td>
<td>Gray/White</td>
<td>6.0%</td>
<td>94.0%</td>
<td>None Detected</td>
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</table>
### Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>Lab Sample ID:</th>
<th>Sample Description:</th>
<th>Analyzed Date</th>
<th>Analyzed Color</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
<th>Comment</th>
<th>LAB Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>42-BB110419</td>
<td>041932102-0042</td>
<td>Basement/Sheetrock Ceiling</td>
<td>11/05/2019</td>
<td>Gray Tan</td>
<td>10.0%</td>
<td>90.0%</td>
<td>None Detected</td>
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</tr>
<tr>
<td>43-BB110419</td>
<td>041932102-0043</td>
<td>Basement/Sheetrock Ceiling</td>
<td>11/06/2019</td>
<td>Gray Tan</td>
<td>15.0%</td>
<td>85.0%</td>
<td>None Detected</td>
<td></td>
</tr>
<tr>
<td>44-BB110419</td>
<td>041932102-0044</td>
<td>Basement/Sheetrock Ceiling</td>
<td>11/05/2019</td>
<td>White</td>
<td>0.0%</td>
<td>97.0%</td>
<td>3% Chrysotile</td>
<td></td>
</tr>
<tr>
<td>45-BB110419</td>
<td>041932102-0045</td>
<td>Basement/Sheetrock Ceiling</td>
<td>11/05/2019</td>
<td>White</td>
<td>25.0%</td>
<td>75.0%</td>
<td>None Detected</td>
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</tr>
<tr>
<td>46-BB110419</td>
<td>041932102-0046</td>
<td>Basement/Flue Pack</td>
<td>11/06/2019</td>
<td>Gray</td>
<td>45.0%</td>
<td>55.0%</td>
<td>None Detected</td>
<td></td>
</tr>
<tr>
<td>47-BB110419</td>
<td>041932102-0047</td>
<td>Exterior/Roofing - Built-up</td>
<td>11/05/2019</td>
<td>Black</td>
<td>8.0%</td>
<td>92.0%</td>
<td>None Detected</td>
<td></td>
</tr>
<tr>
<td>48-BB110419-Tar Paper</td>
<td>041932102-0048A</td>
<td>Exterior/Roofing - Built-up</td>
<td>11/05/2019</td>
<td>Black</td>
<td>20.0%</td>
<td>80.0%</td>
<td>None Detected</td>
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</table>
### Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
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<tr>
<th>Client Sample ID:</th>
<th>49-BB110419-Shingle</th>
<th>Lab Sample ID:</th>
<th>041932102-0049</th>
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</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Exterior/Roofing - Built-up</td>
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<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>White/Black/Green</td>
<td>28.0%</td>
<td>72.0%</td>
<td>None Detected</td>
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<table>
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<th>Client Sample ID:</th>
<th>49-BB110419-Tar Paper</th>
<th>Lab Sample ID:</th>
<th>041932102-0049A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Exterior/Roofing - Built-up</td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Brown/Black</td>
<td>85.0%</td>
<td>15.0%</td>
<td>None Detected</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>50-BB110419</th>
<th>Lab Sample ID:</th>
<th>041932102-0050</th>
</tr>
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<tbody>
<tr>
<td>Sample Description:</td>
<td>Exterior/Mortar associated with Stone Foundation</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
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</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>51-BB110419</th>
<th>Lab Sample ID:</th>
<th>041932102-0051</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Exterior/Mortar associated with Stone Foundation</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
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<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>52-BB110419</th>
<th>Lab Sample ID:</th>
<th>041932102-0052</th>
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<tbody>
<tr>
<td>Sample Description:</td>
<td>Kitchen/Ceiling Gypsum</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray/Tan</td>
<td>10.0%</td>
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<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>53-BB110419</th>
<th>Lab Sample ID:</th>
<th>041932102-0053</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Kitchen/Ceiling Gypsum</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>Gray/Tan</td>
<td>15.0%</td>
<td>85.0%</td>
<td>None Detected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>54-BB110419-Plaster Rough Coat</th>
<th>Lab Sample ID:</th>
<th>041932102-0054</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Room adjacent to Kitchen/Plaster Rough Coat</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>Gray</td>
<td>5.0%</td>
<td>95.0%</td>
<td>None Detected</td>
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<table>
<thead>
<tr>
<th>Client Sample ID:</th>
<th>54A-BB110419-Skim Coat</th>
<th>Lab Sample ID:</th>
<th>041932102-0054A</th>
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</thead>
<tbody>
<tr>
<td>Sample Description:</td>
<td>Room adjacent to Kitchen/Skim Coat</td>
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</table>

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/05/2019</td>
<td>White</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
</tr>
</tbody>
</table>
# Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Lab Sample ID</th>
<th>Sample Description</th>
<th>Analyzed</th>
<th>Color</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-BB110419-Plaster Rough Coat</td>
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<td></td>
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<tr>
<td>Room adjacent to Kitchen/Plaster Rough Coat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55A-BB110419-Skim Coat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Room adjacent to Kitchen/Skim Coat</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>56-BB110419-Plaster Rough Coat</td>
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<tr>
<td>Front Room Closet/Plaster Rough Coat</td>
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<td>56A-BB110419-Skim Coat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Room Closet/Skim Coat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-BB110419-Plaster Rough Coat</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Front Room/Plaster Rough Coat</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>57A-BB110419-Skim Coat</td>
<td></td>
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<td>Front Room/Skim Coat</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>57A-BB110419-Plaster Rough Coat 2</td>
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<td></td>
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<tr>
<td>Front Room/Skim Coat</td>
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</tr>
</tbody>
</table>
## Summary Test Report for Asbestos Analysis in Accordance with N.J.A.C. 8:60 and 12:120 via EPA 600/R-93/116

**Client Sample ID:** 58A-BB110419-Skim Coat  
**Lab Sample ID:** 041932102-0058A  
**Sample Description:** Front Room/Skim Coat

<table>
<thead>
<tr>
<th>TEST</th>
<th>Analyzed Date</th>
<th>Color</th>
<th>Non-Asbestos Fibrous</th>
<th>Non-Fibrous</th>
<th>Asbestos</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLM</td>
<td>11/06/2019</td>
<td>White</td>
<td>0.0%</td>
<td>100.0%</td>
<td>None Detected</td>
<td></td>
</tr>
</tbody>
</table>

**Analyst(s):**  
Garret Vliet  
Kelly Thomas  
Olufunke Akintunde

**Reviewed and approved by:**  
Samantha Rundstrom, Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. This test report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. EMSL bears no responsibility for sample collection activities or analytical method limitations. The laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. PLM alone is not consistently reliable in detecting asbestos in floor coverings and similar NOBs.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, LA #04127
**ENVIRONMENTAL CONNECTION INC**  
A Vertical Technologies Corporation

**Survey Form 04**

<table>
<thead>
<tr>
<th>MATERIAL DESCRIPTION</th>
<th>SAMPLE</th>
<th>HOMO. AREA ID</th>
<th>ROOM NUMBER</th>
<th>PLM or TEM NOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortar Assoc W/ Chimney</td>
<td>01 - 88110419</td>
<td>01</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Mortar Assoc W/ Chimney</td>
<td>02 - 88110419</td>
<td>01</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Fiberboard Assoc W/ Aluminum Siding</td>
<td>03 - 88110419</td>
<td>02</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Fiberboard Assoc W/ Aluminum Siding</td>
<td>04 - 88110419</td>
<td>02</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Paper assoc W/ Aluminum Siding</td>
<td>05 - 88110419</td>
<td>03</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Paper assoc W/ Aluminum Siding</td>
<td>06 - 88110419</td>
<td>03</td>
<td>Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Addition</td>
<td>07 - 88110419</td>
<td>04</td>
<td>Side Addition Foundation Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Addition</td>
<td>08 - 88110419</td>
<td>04</td>
<td>Side Addition Foundation Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Addition</td>
<td>09 - 88110419</td>
<td>04</td>
<td>Side Addition Foundation Exterior</td>
<td>PLM</td>
</tr>
<tr>
<td>Original Parge Coating</td>
<td>Top and Bottom Layer</td>
<td>10/10A - 88110419</td>
<td>05/05A</td>
<td>Exterior Original Bldg Foundation</td>
</tr>
<tr>
<td>Original Parge Coating</td>
<td>Top and Bottom Layer</td>
<td>11/11A - 88110419</td>
<td>05/05A</td>
<td>Exterior Original Bldg Foundation</td>
</tr>
<tr>
<td>Original Parge Coating</td>
<td>Top and Bottom Layer</td>
<td>12/12A - 88110419</td>
<td>05/05A</td>
<td>Exterior Original Bldg Foundation</td>
</tr>
<tr>
<td>Caulk assoc W/ Front Door</td>
<td>13 - 88110419</td>
<td>11</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Caulk assoc W/ Front Door</td>
<td>14 - 88110419</td>
<td>11</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Caulk assoc W/ Original Bldg Windows</td>
<td>15 - 88110419</td>
<td>06</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Caulk assoc W/ Original Bldg Windows</td>
<td>16 - 88110419</td>
<td>06</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Glazing assoc W/ Original Bldg Windows</td>
<td>17 - 88110419</td>
<td>07</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
</tbody>
</table>

**CHECK EACH BOX THAT APPLIES**

- [ ] Point Count Sample if <10%
- [ ] NOB's - TEM if Sample(s) are None Detected or <1%
- [x] Stop at First Positive Homo. Area ID Code
- [ ] 6 hr. TAT
- [ ] 48 hr. TAT
- [ ] 5 Day TAT
- [ ] Other

**CHAIN OF CUSTODY RECORD (CCR)**

<table>
<thead>
<tr>
<th>RELINQUIshed By</th>
<th>DATE</th>
<th>TIME</th>
<th>RECEIVED By</th>
<th>DATE</th>
<th>TIME</th>
<th>REASON FOR CCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>David</td>
<td>11/04/19</td>
<td>08:30</td>
<td>58</td>
<td>11/14/19</td>
<td>04:30</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS:**

120 North Warren Street • Trenton, New Jersey 08608 • tel: 609-392-4200 • fax: 609-392-1216
5 Penn Plaza, Suite 1972 • New York, New York 10001 • tel: 212-952-7300
**Environmental Connection Inc.**

**Survey Form 04**

**Client:** Historic Building Architects  
**Project:** ACM Inspection  
**Building:** Dr. James Still Office  
**Date:** 11.04.19  
**Technician:** Rolo  
**Project #:** 19302-01

**Asbestos Analysis of Bulk Materials via EPA600/R-93/116 Using PLM**

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Sample</th>
<th>HOMO. Area ID</th>
<th>Room Number</th>
<th>PLM or TEM NOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAB BED WIN.</td>
<td>13-BB110419</td>
<td>07</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Grunga, Rough &amp; Sharp Coat</td>
<td>19/19A-BB110419</td>
<td>13</td>
<td>Exterior Front Porch</td>
<td>PLM</td>
</tr>
<tr>
<td>Grunga, Rough &amp; Shin Coat</td>
<td>20/20A-BB110419</td>
<td>13</td>
<td>Exterior Front Porch</td>
<td>PLM</td>
</tr>
<tr>
<td>Grunga, Rough &amp; Shin Coat</td>
<td>21/21A-BB110419</td>
<td>13</td>
<td>Exterior Front Porch</td>
<td>PLM</td>
</tr>
<tr>
<td>Caulk assoc. w/ Rear Porch Door Frames</td>
<td>22-BB110419</td>
<td>12</td>
<td>Exterior Rear Porch</td>
<td>PLM &lt; TEM</td>
</tr>
<tr>
<td>Adhesive Assoc. w/ Rear Porch Windows</td>
<td>23-BB110419</td>
<td>12</td>
<td>Exterior Rear Porch</td>
<td>PLM</td>
</tr>
<tr>
<td>Adhesive Assoc. w/ Rear Porch Windows</td>
<td>24-BB110419</td>
<td>10</td>
<td>Exterior Rear Porch</td>
<td>PLM &gt; TEM</td>
</tr>
<tr>
<td>Brown Textured Siding</td>
<td>25-BB110419</td>
<td>10</td>
<td>Exterior Rear Porch</td>
<td>PLM</td>
</tr>
<tr>
<td>Brown Textured Siding</td>
<td>26-BB110419</td>
<td>15</td>
<td>Exterior Original Bldg</td>
<td>PLM &gt; TEM</td>
</tr>
<tr>
<td>Brown Textured Siding</td>
<td>27-BB110419</td>
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<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Brown Textured Siding</td>
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<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
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<td>Brown Textured Siding</td>
<td>29-BB110419</td>
<td>15</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Brown Textured Siding</td>
<td>30-BB110419</td>
<td>15</td>
<td>Exterior Original Bldg</td>
<td>PLM</td>
</tr>
<tr>
<td>Electric Wire Wrap Ceiling</td>
<td>31-BB110419</td>
<td>26</td>
<td>Basement</td>
<td>PLM</td>
</tr>
<tr>
<td>Electric Wire Wrap Ceiling</td>
<td>32-BB110419</td>
<td>36</td>
<td>Basement</td>
<td>PLM</td>
</tr>
<tr>
<td>2x4 Filler Hole Tile Ceiling</td>
<td>33-BB110419</td>
<td>19</td>
<td>Kitchen</td>
<td>PLM</td>
</tr>
<tr>
<td>2x4 Filler Hole Tile Ceiling</td>
<td>34-BB110419</td>
<td>19</td>
<td>Kitchen</td>
<td>PLM</td>
</tr>
</tbody>
</table>

**Check Each Box That Applies**

- [ ] Point Count Sample if < 10% Asbestos by Weight
- [ ] NOB's - TEM if Sample(s) are None Detected or < 1%
- [x] Stop at First Positive Homo. Area ID Code
- [ ] 6 hr. TAT
- [x] 48 hr. TAT
- [ ] 5 Day TAT
- [ ] Other

**Chain of Custody Record (CCR)**

<table>
<thead>
<tr>
<th>Relinquished By</th>
<th>Date</th>
<th>Time</th>
<th>Received By</th>
<th>Date</th>
<th>Time</th>
<th>Reason for CCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>[signature]</td>
<td>11.04.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

---

120 North Warren Street • Trenton, New Jersey 08608 • tel: 609-392-4200 • fax: 609-392-1216
5 Penn Plaza, Suite 1972 • New York, New York 10001 • tel: 212-952-7300
### Environmental Connection Inc.

**Survey Form 04**

**CLIENT:** Historic Building Architects  
**PROJECT:** ACM Inspection  
**BUILDING:** Dr. James Still Office  
**DATE:** 11/04/19  
**TECHNICIAN:**  
**PROJECT #:** 19302-01

---

**ASBESTOS ANALYSIS OF BULK MATERIALS via EPA600/R-93/116 USING PLM**

<table>
<thead>
<tr>
<th>MATERIAL DESCRIPTION</th>
<th>SAMPLE</th>
<th>HOMO. AREA ID</th>
<th>ROOM NUMBER</th>
<th>PLM or TEM NOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray Leveling Compound</td>
<td>35 - BB110419</td>
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<td>SIDE ADDITION</td>
<td>PLM</td>
</tr>
<tr>
<td>Gray Leveling Compound</td>
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<tr>
<td>Pressboard Wall Panel</td>
<td>37 - BB110419</td>
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<td>SIDE ADDITION</td>
<td>PLM</td>
</tr>
<tr>
<td>Pressboard Wall Panel</td>
<td>38 - BB110419</td>
<td>21</td>
<td>SIDE ADDITION</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster Ceiling</td>
<td>39 - BB110419</td>
<td>23</td>
<td>BASEMENT</td>
<td>PLM</td>
</tr>
<tr>
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<td>40 - BB110419</td>
<td>23</td>
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<td>PLM</td>
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<td>41 - BB110419</td>
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<td>Sheetrock Ceiling</td>
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<td>44 - BB110419</td>
<td>09</td>
<td>SIDE ADDITION EXTERIOR</td>
<td>PLM</td>
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<td>45 - BB110419</td>
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<td>SIDE ADDITION EXTERIOR</td>
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<td>Fume Pack</td>
<td>46 - BB110419</td>
<td>25</td>
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<td>PLM</td>
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<tr>
<td>Fume Pack</td>
<td>47 - BB110419</td>
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<td>BASEMENT</td>
<td>PLM</td>
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<tr>
<td>Roofing (Built-up)</td>
<td>48 - BB110419</td>
<td>27</td>
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<td>PLM</td>
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<td>Roofing (Built-up)</td>
<td>49 - BB110419</td>
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<td>50 - BB110419</td>
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<td>PLM</td>
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<tr>
<td>Mortar ASSOC. W/ Stone Foundation</td>
<td>51 - BB110419</td>
<td>28</td>
<td>EXTERIOR</td>
<td>PLM</td>
</tr>
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</table>

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**CHECK EACH BOX THAT APPLIES**

- [ ] 48 hr. TAT
- [X] 48 hr. TAT
- [ ] 5 Day TAT
- [ ] Other, [ ]

**Stop at First Positive Homogeneity Area ID Code**

**CHAI0N OF CUSTODY RECORD (CCR)**

<table>
<thead>
<tr>
<th>RELINQUISHED BY</th>
<th>DATE</th>
<th>TIME</th>
<th>RECEIVED BY</th>
<th>DATE</th>
<th>TIME</th>
<th>REASON FOR CCR</th>
</tr>
</thead>
</table>

**COMMENTS:**

---

120 North Warren Street • Trenton, New Jersey 08608 • tel: 609-392-4200 • fax: 609-392-1216
5 Penn Plaza, Suite 1972 • New York, New York 10001 • tel: 212-952-7300

Page 3 Of 4
**Survey Form 04**

**ENVIRONMENTAL CONNECTION INC**
A Vertical Technologies Corporation

**CLIENT**: Historic Building Architects  
**PROJECT**: ACM Inspection  
**BUILDING**: Dr. James Still Office  
**DATE**:  
**TECHNICIAN**:  
**PROJECT #**: 19302-01

**ASBESTOS ANALYSIS OF BULK MATERIALS via EPA600/R-93/116 USING PLM**

<table>
<thead>
<tr>
<th>MATERIAL DESCRIPTION</th>
<th>SAMPLE</th>
<th>HOMO. AREA ID</th>
<th>ROOM NUMBER</th>
<th>PLM or TEM NOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling Gypsum</td>
<td>52 - B8110419</td>
<td>29</td>
<td>Kitchen</td>
<td>PLM</td>
</tr>
<tr>
<td>Ceiling Gypsum</td>
<td>53 - B8110419</td>
<td>29</td>
<td>Kitchen</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster (Rough &amp; Skim)</td>
<td>54/54A - B8110419</td>
<td>14</td>
<td>Room 905 to Kitchen</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster (Rough &amp; Skim)</td>
<td>55/55A - B8110419</td>
<td>14</td>
<td>Room 905 to Kitchen</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster (Rough &amp; Skim)</td>
<td>56/56A - B8110419</td>
<td>14</td>
<td>Front Room Closet</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster (Rough &amp; Skim)</td>
<td>57/57A - B8110419</td>
<td>14</td>
<td>Front Room</td>
<td>PLM</td>
</tr>
<tr>
<td>Plaster (Rough &amp; Skim)</td>
<td>58/58A - B8110419</td>
<td>14</td>
<td>Front Room</td>
<td>PLM</td>
</tr>
</tbody>
</table>

**CHECK EACH BOX THAT APPLIES**

- □ Point Count Sample if <10% Asbestos by Weight
- □ NOB's - TEM if Sample(s) are None Detected or <1%
- □ 6 hr. TAT
- □ Stop at First Positive Homo. Area ID Code
- □ 48 hr. TAT
- □ 5 Day TAT
- □ Other

**CHAIN OF CUSTODY RECORD (CCR)**

<table>
<thead>
<tr>
<th>RELINQUISHED BY</th>
<th>DATE</th>
<th>TIME</th>
<th>RECEIVED BY</th>
<th>DATE</th>
<th>TIME</th>
<th>REASON FOR CCR</th>
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</thead>
<tbody>
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<td>[Signature]</td>
<td>11/04/19</td>
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**COMMENTS:**
APPENDIX II

LEAD BASED PAINT SCREENING DATA
# Lead Inspector/Risk Assessor: Jordan Reed

**XRF LEAD BASED PAINT INSPECTION DATA SHEET**

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>Component</th>
<th>Substrate</th>
<th>Value</th>
<th>Classification</th>
<th>Condition (pos., neg., inc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Porch</td>
<td>0.1</td>
<td>Neg.</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Porch</td>
<td>0.0</td>
<td>Neg.</td>
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<tr>
<td>3</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Porch</td>
<td>0.3</td>
<td>Neg.</td>
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</tr>
<tr>
<td>4</td>
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<td>Wood</td>
<td>Door Frame</td>
<td>0.1</td>
<td>Neg.</td>
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</tr>
<tr>
<td>5</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Door Frame</td>
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<tr>
<td>6</td>
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<td>Wood</td>
<td>Door Frame</td>
<td>0.1</td>
<td>Neg.</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Door Frame</td>
<td>0.1</td>
<td>Neg.</td>
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<tr>
<td>8</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Door Frame</td>
<td>0.1</td>
<td>Neg.</td>
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<tr>
<td>9</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Door Frame</td>
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<td>Wood</td>
<td>Door Frame</td>
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<tr>
<td>11</td>
<td>House Front Door</td>
<td>Wood</td>
<td>Door Frame</td>
<td>0.1</td>
<td>Neg.</td>
<td>-</td>
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</tbody>
</table>

**Substrate: SR = Sheetrock, C = Concrete, B = Brick, W = Wood, PL = Plaster, M = Metal**

**Component:**  
- **W** = Wall  
- **F** = Floor  
- **C** = Ceiling  
- **WD** = Window  
- **WF** = Window Frame  
- **WC** = Window Casing  
- **WM** = Window Mullion  
- **WS** = Window Sill  
- **WSH** = Window Sash  
- **D** = Door  
- **DF** = Door Frame  
- **DC** = Door Casing  
- **DJ** = Door Jamb  
- **H** = Header  
- **CB** = Covebase  
- **T** = Trim  
- **CR** = Chair Rail  
- **S** = Stairs  
- **Ri** = Riser  
- **Ru** = Runner  
- **SM** = Stair Mullion

**Lead Inspector/Risk Assessor:** Jordan Reed

---

**XRF Inspections:**

- **EC:** 19302-01  
- **RF Serial #:** 2320  
- **Job #:** 11-4-19-1200  
- **Client:** Historic Building Architects  
- **Address:** 120 North Warren Street, Trenton, New Jersey 08608  
- **Phone:** 609-392-4200  
- **Fax:** 609-392-1216  
- **Comm.:** 5 Penn Plaza, Suite 1972, New York, NY 10001  
- **Phone:** 212-952-7300  
- **Fax:** 212-952-1216  

---

**Environmental Connection Inc.**

- **A Vertical Technologies Corporation**
- **Address:** 120 North Warren Street, Trenton, New Jersey 08608  
- **Phone:** 609-392-4200  
- **Fax:** 609-392-1216  
- **Comm.:** 5 Penn Plaza, Suite 1972, New York, NY 10001  
- **Phone:** 212-952-7300  
- **Fax:** 212-952-1216
<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>Condition/Comments</th>
<th>Component</th>
<th>Substrate</th>
<th>XRF Value (pos, neg, inc)</th>
<th>Classification</th>
<th>Value</th>
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<tbody>
<tr>
<td></td>
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<td>Window Frame</td>
<td>Wood</td>
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<td>Neg.</td>
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<tr>
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<td>Window Frame</td>
<td>Wood</td>
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<td>Neg.</td>
<td></td>
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<tr>
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<td>Window Frame</td>
<td>Wood</td>
<td>0.0</td>
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<td>29</td>
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<td>Wood</td>
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</tr>
</tbody>
</table>

**Lead Inspector/Risk Assessor:** Jordan Reed

**Substrate:**
- SR = Sheetrock
- C = Concrete
- B = Brick
- W = Wood
- P = Plaster

**Component:**
- W = Wall
- F = Floor
- C = Ceiling
- Wd = Window
- WF = Window Frame
- WC = Window Casing
- WM = Window Mullion
- WS = Window Sill
- WSH = Window Sash
- D = Door
- DF = Door Frame
- DC = Door Casing
- DJ = Door Jamb
- H = Header
- CB = Covebase
- T = Trim
- CR = Chair Rail
- S = Stairs
- Ri = Riser
- Ru = Runner
- SM = Stair Mullion
XRF LEAD BASED PAINT INSPECTION DATA SHEET

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>Component</th>
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<th>Classification/Condition</th>
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<th>XRF Value</th>
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<td>Window</td>
<td>Wood</td>
<td></td>
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<td>Window</td>
<td>Wood</td>
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<td>Window</td>
<td>Wood</td>
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<tr>
<td>27</td>
<td>Crawl Space/Outer Side/Addition</td>
<td>Wood</td>
<td>Wood</td>
<td></td>
<td>3.3</td>
<td>Window</td>
<td>Wood</td>
<td></td>
<td>39</td>
</tr>
</tbody>
</table>

Lead Inspector/Risk Assessor: Jordan Reed

Substrate:
- SR = Sheetrock
- C = Concrete
- B = Brick
- W = Wood
- P = Plaster
- CB = Cinderblock
- M = Metal

Component:
- W = Wall
- F = Floor
- C = Ceiling
- Wd = Window
- WF = Window Frame
- WC = Window Casing
- WM = Window Mullion
- WS = Window Sill
- WSH = Window Sash
- D = Door
- DF = Door Frame
- DC = Door Casing
- DJ = Door Jamb
- H = Header
- CF = Covebase
- T = Trim
- CR = Chair Rail
- S = Stairs
- Ri = Riser
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Address:
- 5 Penn Plaza, Suite 1922
- New York, NY 10001
- Tel: 212-952-7300
- Fax: 609-392-1216

120 North Warren Street
- Trenton, New Jersey 08608
- Tel: 609-392-4200
- Fax: 609-392-1216

November 4, 2019
<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>XRF Value</th>
<th>Component</th>
<th>Substrate</th>
<th>Classification/Subtrade (pos, neg, inc)</th>
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<tbody>
<tr>
<td>40</td>
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<td>0.1</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>41</td>
<td>Rear Porch Floor</td>
<td>1.3</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>42</td>
<td>Rear Porch Ceiling</td>
<td>0.2</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>43</td>
<td>Rear Porch Window</td>
<td>0.5</td>
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<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
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<tr>
<td>44</td>
<td>Rear Porch Door Frame</td>
<td>0.7</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>45</td>
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<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>46</td>
<td>Rear Porch Window</td>
<td>0.3</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
<tr>
<td>47</td>
<td>Rear Porch Door Frame</td>
<td>0.1</td>
<td>Wood</td>
<td>Wood</td>
<td>HR = Room S = Stairs R = Header C = Corner FL = Trim FT = Frieze F = Floor W = Window S = Sill M = Mullion</td>
</tr>
</tbody>
</table>

**Lead Inspector/Risk Assessor:** Jordan Reed

**Substrate:**
- SR = Sheetrock
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<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>Component</th>
<th>Substrate</th>
<th>Condition</th>
<th>XRF Value</th>
<th>Classification</th>
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</thead>
<tbody>
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<td>Wood</td>
<td>Pos.</td>
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<tr>
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<td>Wood</td>
<td>Pos.</td>
<td>2.3</td>
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<td>Room Adj. Kitchen Left Side</td>
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<td>Wood</td>
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<td>Room Adj. Kitchen Left Side</td>
<td>Cove Base</td>
<td>Wood</td>
<td>Neg.</td>
<td>0.0</td>
<td>SR</td>
</tr>
</tbody>
</table>

**Substrate**:
- SR = Sheetrock
- C = concrete
- B = Brick
- W = Wood
- PL = Plaster
- CB = Cinderblock
- M = Metal

**Component**:
- W = Wall
- F = Floor
- C = Ceiling
- Wd = Window
- WF = Window Frame
- WC = Window Casing
- WM = Window Mullion
- WS = Window Sill
- WSH = Window Sash
- D = Door
- DF = Door Frame
- DC = Door Casing
- DJ = Door Jamb
- H = Header
- T = Trim
- CR = Chair Rail
- S = Stairs
- Ri = Riser
- Ru = Runner
- SM = Stair Mullion
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<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>XRF LEAD BASED PAINT INSPECTION DATA SHEET</th>
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<tbody>
<tr>
<td>66</td>
<td>Room Adj. Kitchen Left Side</td>
<td>Wood Cove Base</td>
</tr>
<tr>
<td>67</td>
<td>Room Adj. Kitchen Left Side</td>
<td>Wood Window Frame</td>
</tr>
<tr>
<td>68</td>
<td>Room Adj. Kitchen Left Side</td>
<td>Wood Sill</td>
</tr>
<tr>
<td>69</td>
<td>Front Room Wall A</td>
<td>Wood Closet Door</td>
</tr>
<tr>
<td>70</td>
<td>Hallway Wall A</td>
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</tr>
<tr>
<td>71</td>
<td>Addition Wall B</td>
<td>Wood Wall</td>
</tr>
<tr>
<td>72</td>
<td>Door to Addition</td>
<td>Wood Window Frame</td>
</tr>
<tr>
<td>73</td>
<td>Addition Wall C</td>
<td>Wood Sill</td>
</tr>
<tr>
<td>74</td>
<td>Addition Wall D</td>
<td>Wood Sill</td>
</tr>
<tr>
<td>75</td>
<td>Addition Wall D</td>
<td>Wood Sill</td>
</tr>
<tr>
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<td>Addition Wall D</td>
<td>Wood Window Sill</td>
</tr>
<tr>
<td>77</td>
<td>Addition Window C</td>
<td>Wood Window Sill</td>
</tr>
<tr>
<td>78</td>
<td>Addition Window C</td>
<td>Wood Window Sill</td>
</tr>
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</table>

**Lead Inspector/Risk Assessor:** Jordan Reed
# XRF Lead Based Paint Inspection Data Sheet

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>Condition (pos, neg, inc)</th>
<th>Substrate</th>
<th>Component</th>
<th>XRF Value</th>
<th>Classification</th>
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</thead>
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<td>Wall</td>
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<td>pos.</td>
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<td>Wood</td>
<td>Wall</td>
<td>0.3</td>
<td>neg.</td>
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<tr>
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<td>pos.</td>
<td>Wood</td>
<td>Floor</td>
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<td>pos.</td>
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<tr>
<td>88</td>
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<td>neg.</td>
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<td>Floor</td>
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<td>neg.</td>
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<td>Wood</td>
<td>Wall</td>
<td>6.6</td>
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<tr>
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<td>Wood</td>
<td>Wall</td>
<td>7.7</td>
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<td>Wall</td>
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<td>Wall</td>
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<td>Wall</td>
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</table>

**Lead Inspector/Risk Assessor:** Jordan Reed

**Substrates:**
- SR = Sheetrock
- C = Concrete
- B = Brick
- W = Wood
- PL = Plaster
- CB = Cinderblock
- M = Metal

**Components:**
- W = Wall
- F = Floor
- C = Ceiling
- Wd = Window
- WF = Window Frame
- WC = Window Casing
- WM = Window Mullion
- WS = Window Sill
- WSH = Window Sash
- D = Door
- DF = Door Frame
- DC = Door Casing
- DJ = Door Jamb
- H = Header
- CB = Covebase
- T = Trim
- CR = Chair Rail
- S = Stairs
- R = Riser
- Ru = Runner
- SM = Stair Mullion
# Lead Inspector/Risk Assessor: Jordan Reed

## Lead Based Paint Inspection Data Sheet

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Test Location/Room Equivalent</th>
<th>XRF Value</th>
<th>Classification</th>
<th>Condition/Component</th>
<th>Substrate</th>
<th></th>
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</thead>
<tbody>
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<td>Door Frame</td>
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**Table Notes:**
- **XRF:** X-ray Fluorescence
- **Classification:** Positive (Pos.), Negative (Neg.), Incidental (Inc.)
- **Condition:** The condition of the substrate
- **Substrate:** Type of material

---

**Address:**
- 120 North Warren Street
- Trenton, New Jersey 08608
- Tel: 609-392-4200
- Fax: 609-392-1216

---

**Client:** Historic Building Architects

---

**Job #:** 11-4-19-1200

---

**Date:** November 4, 2019

---

**Page:** 8 of 9
<table>
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<tr>
<th>Sample #</th>
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<th>Component</th>
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<th>Classification/Condition</th>
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</tbody>
</table>

**Lead Inspector/Risk Assessor:** Jordan Reed

**Substrate:**
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- DC = Door Casing
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**Address:**
120 North Warren Street • Trenton, New Jersey 08608 • Tel: 609-392-4200 • Fax: 609-392-1216

**EC:**
19302-01

**XRF Serial #:**
2320

**Date:**
November 4, 2019

**Client:**
Historic Building Architects

**Unit #:**
2

**Job #:**
11-4-19-1200

**Unit #:**
2

**Page:**
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APPENDIX III

POLYCHLORINATED BIPHENYL MATERIAL INSPECTION
The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 11/4/2019. The results are tabulated on the attached data pages for the following client designated project:

**HazMat Assess 19302-01**

The reference number for these samples is EMSL Order #011914086. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Approved By:

[Signature]

Phillip Worby, Environmental Chemistry Laboratory Director

The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.

NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, CA ELAP 1877

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.
## Analytical Results

### Client Sample Description 01-JR110419
**Collected:** 11/4/2019  
**Lab ID:** 011914086-0001

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<th>RL</th>
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<th>Prep Date &amp; Analyst</th>
<th>Analysis Date &amp; Analyst</th>
</tr>
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### Client Sample Description 02-JR110419
**Collected:** 11/4/2019  
**Lab ID:** 011914086-0002

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<tr>
<th>Method</th>
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### Client Sample Description 03-JR110419
**Collected:** 11/4/2019  
**Lab ID:** 011914086-0003

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## Analytical Results

### Client Sample Description 03-JR110419

**Collected:** 11/4/2019  
**Lab ID:** 011914086-0003  
**Window glazing original structure**

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### Client Sample Description 04-JR110419

**Collected:** 11/4/2019  
**Lab ID:** 011914086-0004  
**Window glazing side addition**

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### Client Sample Description 05-JR110419

**Collected:** 11/4/2019  
**Lab ID:** 011914086-0005  
**Porch exterior door caulk reab porch**

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Definitions:
MDL - method detection limit
J - Result was below the reporting limit, but at or above the MDL
ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit (Analytical)
D - Dilution
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**Notes:**
- 1 Week Turn Around Time
- Door open
- Door open
- Door open

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**Client:**
- Environmental Connection Inc.
- Historical Building Architects

**Project:**
- DR. James Stil Office
- Hazard Assessment
APPENDIX IV

CERTIFICATIONS/ACCREDITATIONS
Certificate of Completion

awarded to

Jordan Reed

Pennsylvania Asbestos
Building Inspector Refresher Course

presented by
ACCESS TRAINING SERVICES, INC.
7021 River Road, Pennsauken, NJ 08110
(856) 665-3449

under TSCA Title II

8/8/19 Course Date
8/8/20 Expiration Date
N/A Exam Date
ACC-0819-6-0008 Certificate Number

Certified by:

Mark K. Schuiger
Training Director

Social Security Number Not Provided
Building Inspector Refresher Course
Pennsylvania Asbestos

for successfully completing the prescribed course of study in

Brian B. Brill

awarded to

Certificate of Completion
Asbestos Fiber Analysis

This laboratory is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation for.

Cincinnati, OH
EMIST Analytical Inc.

NVLAP LAB CODE: 101048-0

Certificate of Accreditation to ISO/IEC 17025:2017

National Institute of Standards and Technology
United States Department of Commerce
SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Mr. Ben Ellis
Phone: 800-220-3675  Fax: 856-786-5973
Email: bellis@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS  

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

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Airborne Asbestos Analysis

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APPENDIX V

PHOTOGRAPH LOG
Photograph 1 – 209 Church Road, Medford, New Jersey
Dr. James Still - Office

Photograph 2 – East Elevation (Side Addition Visible)

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Photograph 3 – North Elevation (Rear Porch)

Photograph 4 – West Elevation
Photograph 5 – Original Structure Parge Coat (ACM) & Mortar assoc. with Chimney (Non-ACM)

Photograph 6 – Fiberboard assoc. with Aluminum Siding (Non-ACM)

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Photograph 7 – Paper assoc. with Aluminum Siding (Non-ACM)

Photograph 8 – Original Structure Parge Coat (ACM)
Photograph 9 – Original Structure Window Caulk (ACM)

Photograph 10 – Original Structure Window Glazing (Non-ACM)

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**Photograph 11 – Side Addition Window Glazing (ACM)**
Note: No Window Caulk Observed on Side Addition Windows

**Photograph 12– Door Frame Caulk (ACM)**
Photograph 13 – Adhesive behind Metal Frame of Rear Porch Windows (ACM)

Photograph 14 – Door Caulk assoc. with Rear Porch Exterior Door Frame (ACM)

| Site Photographs |
|------------------|------------------|
| Date Taken       | November 4, 2019|
| Client           | Historic Building Architects, LLC |
| Location         | Dr. James Still - Office |
| Address          | 209 Church Road, Medford, New Jersey 08055 |
Photograph 15 – Front Porch Plaster assoc. with Wire Mesh (Non-ACM)

Photograph 16 – Brown Textured Paint of Vertical Wood Siding (Non-ACM)
Photograph 17 – 2’ x 4’ Fiberglass Ceiling Tile and assoc. Glue (Assumed)

Photograph 18 – Patterned Linoleum Flooring in Closets (Assumed)

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Photograph 19 – Pressboard behind Wood Paneling (Non-ACM)

Photograph 20 – White Peel and Stick Wall Tile (Assumed)

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Site Photographs

Date Taken | November 4, 2019
Client | Historic Building Architects, LLC
Location | Dr. James Still - Office
EC Project # | 19302-01
Address | 209 Church Road, Medford, New Jersey 08055

Photograph 21 – 2’ x 4’ Fissure Hole Ceiling Tile (Non-ACM)

Photograph 22 – Basement Ceiling Plaster (Non-ACM)
Photograph 23 – Basement Ceiling Sheetrock (Non-ACM)

Photograph 24 – Basement Flue Pack

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Photograph 25 – Clapboard Siding (LBP) Brown Textured Paint on Vertical Siding (LBP)

Photograph 26 – Decorative Molding, Eave and Facia (LBP)
Photograph 27 – Transom (LBP)

Photograph 28 – Front Room Plaster Walls, Baseboard, Window Frame, and Window Apron (LBP)

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APPENDIX VI

SAMPLE LOCATION PLANS
SECTION 028313 - LEAD IN CONSTRUCTION

PART 1  GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.
B. Report titled Environmental Building Assessment Dr. James Still Office Stabilization Project – 209 Church Road, Medford, New Jersey 08055, dated November 20, 2019.

1.2 CONDITIONS

A. All documents prepared by Environmental Connection, Inc., (EC) including any attachments, may contain information that is privileged and confidential, and is exclusively generated for the sole and intended use of the recipient(s). EC’s Instruments of Service included Contract Drawings, Technical Specifications and other documents prepared by EC, are for the sole use of this Project, and unless otherwise provided, EC shall be deemed the Author and Owner of these documents and shall retain all common law, statutory and other reserved rights, including copyrights.

B. For the purposes of this document, the term Contractor shall apply to any and all Trades that will disturb surfaces, components, objects, etc., coated with paint, shellac, varnish, stains, etc., and potentially generate dust, debris, airborne contaminants, etc., as a result of demolition activities at any of the properties listed below. Should demolition activities disturb paint, shellac, varnish or stains, the Contractor shall employ the Minimum Safe Work Practices Requirements identified within Part 3.1.C of this Section.

C. Work referenced within these Technical Specifications is not to address potential lead health issues and children, as outlined by N.J.A.C. 5:17, which is the New Jersey Lead Hazard Evaluation and Abatement Code; 40 CFR, Part 745, the Lead Based Paint Poisoning Prevention in Certain Residential Structures, including child occupied buildings; and/or N.J.A.C. 5:10, the New Jersey Regulations for Lead-Safety Maintenance of Rental Housing.

D. Treatment of Painted Surfaces: The United States Department of Labor, Occupational Safety and Health Administration, (OSHA) does not establish a threshold lead level to determine a coating as lead-based paint. As such, the Contractor shall utilize appropriate engineering controls and personal protective equipment when disturbing paint. This shall also apply for any demolition work that generates nuisance dust/particulates. Further, where applicable, the New Jersey Public Employees Occupational Safety and Health (PEOSH) program requires, at a minimum, the use of engineering controls during demolition/construction work to minimize dust/particulates.

1. To fulfill the requirements of OSHA, the disturbance of any coating (i.e., paint, stain, shellac, varnish, glazed ceramic tiles, etc.) should be treated by a Contractor in accordance with 29 CFR, Part 1926.62, OSHA “Lead in Construction Standard.” In addition, State Facilities are within the jurisdiction of PEOSH. The New Jersey Air Quality Standard, N.J.A.C. 12:100-13, if applicable, requires the Contractor’s engineering controls to diffuse dust, stone and other small particles, toxic gases or other harmful substances in quantities hazardous to health by means of work area isolation, local ventilation and other protective devices.

2. OSHA’s “Lead in Construction Standard” requires, at a minimum, the Contractor to provide a site specific Lead Safety Plan to address 1.) worker protection, including respiratory protection; 2.) worksite contamination, clean-up, including personal hygiene,
and waste disposal; and 3.) exposure monitoring for workers as required by the OSHA, for those persons whose trade will disturb painted surfaces as a result of demolition activities, paint refinishing, construction and re-construction, etc.

E. Definitions as noted in these Technical Specifications are included as part of the Contract.

1.3 COORDINATION

A. The Contractor shall coordinate all activities with the Owner’s representative; where the Trade performing the work specified herein is a sub-contractor, the sub-contractor shall coordinate all work with the Prime Contractor for coordination with the Owner’s representative.

B. Coordination of work shall be notified, at a minimum within forty-eight (48) hours of an event. The exception shall be that of emergency situations.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this Specification to the extent referenced and are referred to in the text by basic designation only.

B. Code of Federal Regulations (CFR):

- CFR 29, Part 1910 .......... Occupational Safety and Health Standards
- CFR 29, Part 1926 .......... Safety and Health Regulations for Construction
- CFR 40, Part 262 .......... Standards Applicable to Generators of Hazardous Waste
- CFR 40, Part 263 .......... Standards Applicable to Transporters of Hazardous Waste
- CFR 40, Part 265 .......... Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- CFR 40, Part 268 .......... Land Disposal Restrictions
- CFR 49 Part 178 .......... Specifications for Packaging

C. National Fire Protection Association (NFPA):

- NFPA 701-2004 .......... Methods of Fire Test for Flame-Resistant Textiles and Films

D. National Institute for Occupational Safety and Health (NIOSH)

- NIOSH OSHA Booklet 3142 Lead in Construction

E. Underwriters Laboratories (UL)

- UL 586-1996 (Rev 2004) High-Efficiency, Particulate, Air Filter Units

F. American National Standards Institute
Z9.2-2001 .................................. Fundamentals Governing the Design and Operation of Local Exhaust Systems

Z88.2-1992 .............................. Respiratory Protection

1.5 DEFINITIONS

A. **Action Level**: Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, “30 micrograms per cubic meter of air” refers to the action level.

B. **Area Monitoring**: Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations which may reach the breathing zone of personnel potentially exposed to lead.

C. **Physical Boundary**: Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area."

D. **Certified Industrial Hygienist (CIH)**: As used in this section, refers to an Industrial Hygienist employed by the Contractor and is certified by the American Board of Industrial Hygiene in comprehensive practice.

E. **Change Rooms and Shower Facilities**: Rooms within the designated physical boundary around the lead control area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

F. **Competent Person**: A person capable of identifying lead hazards in the work area and is authorized by the Contractor to take corrective action.

G. **Decontamination Room**: Room for removal of contaminated personal protective equipment (PPE).

H. **Eight-Hour Time Weighted Average (TWA)**: Airborne concentration of lead averaged over an 8-hour work day to which an employee is exposed.

I. **High Efficiency Particulate Air (HEPA) Filter Equipment**: HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3-micron size particles.

J. **Lead**: Metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.

K. **Lead Control Area**: An enclosed area or structure with full containment to prevent the spread of lead dust, paint chips, or debris of lead-containing paint removal operations. The lead control area is isolated by physical boundaries to prevent unauthorized entry of personnel.

L. **Lead Permissible Exposure Limit (PEL)**: Fifty micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR, Part 1910.1025. If an employee is exposed for more than 8 hours in a work day, the PEL shall be determined by the following formula. PEL (micrograms/cubic meter of air) = 400/No. of hours worked per day.

M. **Personnel Monitoring**: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR, Part 1910.1025. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 150 mm to 225 mm (6 to 9 inches) and the center at the nose or mouth of an employee.

1.6 QUALITY ASSURANCE

A. **Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by 29 CFR, Part 1926.62 (I) (1) (i) & (ii). The examination shall not be required if adequate records show that employees have been examined as required by 29 CFR, Part 1926.62(I) within the previous twelve (12) months.**

B. **Medical Records**: Maintain complete and accurate medical records of employees in accordance with 29 CFR, Part 1910.20.
C. Training: Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment, in accordance with 29 CFR, Part 1926.62.

D. Respiratory Protection Program:
1. Furnish each employee required to wear a negative pressure respirator, or other appropriate type, with a respirator fit test at the time of initial fitting and at least every six (6) months thereafter as required by 29 CFR, Part 1926.62.


F. Hazardous Waste Management: The Hazardous Waste Management Plan shall comply with applicable requirements of Federal, State, and local hazardous waste regulations and address:
1. Identification of hazardous wastes associated with the work.
2. Estimated quantities of wastes to be generated and disposed of.
3. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two (2) copies of NJ DEP, state and, if applicable, local hazardous waste permit applications, permits and EPA Identification Numbers.
4. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
6. Spill prevention, containment, and clean-up contingency measures to be implemented.
7. Work plan and schedule for waste containment, removal and disposal. Wastes shall be cleaned up and containerized daily.
8. Cost for hazardous waste disposal according to this plan.

G. Safety and Health Compliance:
1. In addition to the requirements of this Specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR, Part 1910.1025 and 29 CFR, Part 1926.62.
2. Where Specification requirements and the referenced documents vary, the most stringent requirements shall apply.
3. The following local laws, ordinances, criteria, rules and regulations regarding removing, handling, storing, transporting, and disposing of lead-contaminated materials apply:
   b. N.J.A.C. 8:62 – New Jersey Standards for Lead Certification
   c. N.J.A.C. 7:26 – New Jersey Waste Disposal

H. Pre-Construction Conference: Meet with the CIH to discuss in detail the lead- based/containing paint removal work plan, including work procedures and precautions for the work plan.

1.7 SUBMITTALS
A. Submit the following.
B. Manufacturer’s Catalog Data:
   - Vacuum filters
   - Respirators
C. Instructions: Paint removal materials. Include applicable Safety Data Sheets.
D. Statements Certifications and Statements:

1. Should exposure assessment monitoring be deemed necessary, submit the name, address, and telephone number of the testing laboratory selected to perform the monitoring, testing, and reporting of airborne concentrations of lead. Provide proper documentation that persons performing the analysis have been judged proficient by successful participation within the last year in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program. The laboratory shall be accredited by the American Industrial Hygiene Association (AIHA). Provide AIHA documentation along with date of accreditation/reaccreditation.

E. Lead Safe Work Practices Plan:

1. Submit a detailed job specific plan of the work procedures to be used during the disturbance of lead based/containing paint. The plan shall include a sketch showing the location, size, and details of work areas, location and details of decontamination rooms, change rooms, shower facilities, and mechanical ventilation system, where applicable.

2. Include in the plan, eating, drinking, smoking and restroom procedures, interface of trades, sequencing of lead related work, collected wastewater and paint debris disposal plan, air sampling plan, respirators, protective equipment, and a detailed description of the method of containment of the operation to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded outside of the lead control area.

3. Include air sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of air monitoring personnel in the air sampling portion on the plan.

4. Field Test Reports: Monitoring Results: Submit monitoring results within three (3) work days, signed by the employee performing the air monitoring and the analyst.

5. Records:
   a. Completed and signed hazardous waste manifest from treatment or disposal facility.
   b. Certification of Medical Examinations.
   c. Employee training certification.

PART 2 DESCRIPTION OF WORK

A. Based on representative sampling of paints, lead based paint was detected on components listed below.

<table>
<thead>
<tr>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior</td>
<td>Front Door Frame</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Headers</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Sills</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Window Frames</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Clapboard Siding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Vertical Wood Plank Siding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Decorative Exterior Molding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Roof Eave associated with Molding</td>
<td>Wood</td>
</tr>
<tr>
<td></td>
<td>Roof Fascia associated with Molding</td>
<td>Wood</td>
</tr>
</tbody>
</table>
B. Additional Information

1. The Contractor shall post appropriate OSHA warning signs as specified and required by 29 CFR, Part 1926.62. The Contractor shall also post appropriate notices of construction related work, as per N.J.A.C. 12:100-13, indicating potential environmental issues (i.e., dust, gases, fumes, odors, etc.) and the location of SDS documents. The Contractor shall provide for clearly marked emergency means of egress for the work areas specified. These notifications shall be placed at eye level and in languages consistent with the building population.

2. The Contractor shall submit applicable Safety Data Sheets for paint removal products used in paint removal work. Use the least toxic product, suitable for the job and acceptable to the Industrial Hygienist.

3. The Contractor shall be liable for all costs associated with the replacement or repair of any utilities, equipment, materials, building components, etc., that may be damaged during the course of Contractor work.

PART 3 EXECUTION

3.1 PROTECTION

A. Notification: Notify the Owner/Owner’s representative 20 days prior to the start of any work involving the disturbance of paint.

B. Lead in Construction Requirements:

The following is a brief summary of the Lead Exposure in Construction requirements, as per 29 CFR, Part 1926.62.

1. Tasks and Trades Covered by this Rule:

   a. General Contractors - Commercial, Residential, Highway, Street
   b. Bridge, Tunnel & Elevated Highway
   c. Plumbing, Painting, Electrical, Plaster, Drywall & Insulation
   d. Carpentry
   e. Floor Layers
   f. Roofing & Siding
   g. Structural Steel Erection
   h. Wrecking & Demolition
   i. Miscellaneous Special Trades
   j. Operators of Dwellings
   k. Operators of State & Municipal Governments

2. Exposure Assessment: The initial step in compliance with this rule shall be to assess exposure to lead of any trade known to be or suspected of being exposed to lead. The purpose is to determine if any employee is exposed at or above the action level. Employee exposure is that which occurs without the use of respirators. Action Level for Lead Exposure - 30 micrograms per cubic meter of air, Time Weighted Average (TWA) per 8-hour shift. Permissible Exposure Level Limit (PEL) - 50 micrograms per cubic meter of air, Time Weighted Average (TWA) per 8 hr. shift.

3. Until the exposure assessment is complete, each affected Trade shall be treated as though exposure occurs above the PEL. Personal samples representative of a full shift shall be collected and include at least one (1) sample for each job classification in each work area for each shift. The results of the exposure assessment will dictate the protection level of
PPE to be prescribed. Positive and negative indications of exposure should be carefully documented. Additional exposure monitoring shall occur when there is a change in equipment, task, personnel, process, control or any occurrence which may result in additional or further exposure.

4. Employees shall be notified of the results within five (5) working days from the completion of the exposure assessment. Employees found to be exposed at greater levels than the PEL shall be given written notice along with the description of corrective measures to be taken to reduce the exposure to below the PEL.

5. Administrative Controls: If any exposure monitoring results in levels greater than the PEL, the employer shall maintain written programs and make these programs available to employees. Programs shall include: Hazardous Communications (HAZ COM), Respiratory Program in accordance with 29 CFR, Part 1910.134 (b), (d), (e) & (f), Personal Protection Program (including good housekeeping, hygiene facilities and practices, good work practices, etc.) Medical Surveillance, Record Keeping, Training, Medical Removal.

6. Medical Surveillance: Shall include initial blood sampling for lead and zinc protoporphyrin levels. For employees who are, or may be exposed at, or above the Action Level for more than 30 days in any consecutive 12 months, biological monitoring with employee notification and medical examination and consultation at least annually shall be implemented.

7. Medical Examination shall include:
   a. Work History and Medical History (to include past lead exposure).
   b. Habits: (Smoking & Hygiene).
   d. A thorough physical examination with attention to: teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems.
   e. Pulmonary Status for respiratory wearers.
   f. Blood Pressure Measurement.
   g. Hemoglobin & Hematocrit determination, red cell indices, and peripheral smear morphology.
   h. Zinc protoporphyrin.
   i. Blood urea nitrogen.
   j. Serum creatinine.
   k. Routine urinalysis with microscopic examination.
   l. Any other test relevant to lead exposure deemed necessary by examining physician.

8. Any employee is entitled to, with proper notification to the employer, a second opinion. Should the second examination conducted differ from the first in results, the employee and employer shall negotiate a third opinion. Pregnancy testing and male fertility assessment shall be made available to employees requesting testing.

9. Training shall be on an annual basis, for each employee at or above the action level:
   a. Content of OSHA Standard
   b. Nature of Operations
   c. Description and purpose of Medical Surveillance, Medical Removal Programs
   d. Health Effects of Exposure (specific to male and female)
   e. Engineering controls and work practices
   f. Any other Compliance Plan in Effect
   g. Chelation
   h. Respiratory and Personal Protection
   i. Right to Access of Records

10. Records shall be kept for a period of 30 years. Records are transferred to the new Owner if employee ceases to do business prior to 30 years. If employer discontinues business
with no new Owner, prior to 30 years, records are transferred to the Director of NIOSH. Records shall be maintained for the following:

a. Exposure Assessment  
b. Exposure Monitoring  
c. Respiratory Protection  
d. Medical Surveillance  
e. Medical Removals  
f. Employee Records

11. Records shall be made available for examination and copying to:

a. Effected Employees  
b. Former Employees  
c. OSHA Assistant Secretary and Director


1. In addition to 29 CFR, Part 1926.62, the Contractor shall implement the minimum safe work practices, as developed by the USEPA and the United States Department of Housing and Urban Development (HUD), which includes and shall apply to coatings that could contain lead and for general demolition and construction practices that produce dust, debris, airborne particulates, etc. Procedures referenced herein also incorporate those of OSHA, N.J.A.C. 5:17, and general industry practices, as applicable, for guidance.

a. Establish a three-stage remote decontamination unit adjacent to the work area. The decontamination unit shall consist of a clean chamber, shower chamber, and equipment chamber. The clean chamber shall include a space for workers to safely store street clothes.

b. Workers shall remove street clothes and put on temporary coveralls prior to engaging in work activities. No street clothes shall be permitted in the work area.

c. Isolate all openings between the exterior work areas and building interiors, such as windows, doors, HVAC fresh air intakes, etc., with a minimum of two (2) layers of six (6) mil polyethylene sheeting secured airtight with duct tape, and where necessary, spray-glue.

d. Prior to the installation of drop cloths, pre-clean the work area. Pre-cleaning shall consist of HEPA vacuuming of all horizontal and vertical surfaces in the work area. Exterior work area pre-cleaning shall include the HEPA vacuuming of paint chips from the ground. The composition of the ground covering, soil, grass, concrete, or asphalt, shall not preclude the Contractor from the pre-cleaning requirement.

e. Utilize drop cloths, consisting of two (2) layers of six (6) mil polyethylene sheeting within the work area; for exterior work areas, extend the polyethylene sheeting at least five (5) feet from the building’s perimeter, to capture any dust, paint chips, debris, etc., generated from the work. Bushes within the work area shall also be protected with six (6) mil polyethylene sheeting, where necessary.

f. Outside work area ingress/egress points, shall have “sticky pads” placed to capture residual dust, including lead dust, from workers footwear/shoes to minimize tracking dust to the outside from the control area.

g. Immediately upon exiting the work area, workers shall enter the remote decontamination unit where they will remove their temporary coveralls, shower, and put on street clothes.
2. Treatment Methods for Surfaces Coated with Paint
   
a. Wet Scraping: Mist surfaces prior to wet scraping in preparation for painting and/or when components are removed for disposal or restoration.
   
i. Lightly mist the surface to be treated prior to scraping. Do not apply water to components containing electrical circuits.
   
ii. Wet Scraping paint removal shall be accomplished via metal hand scrapers. The use of battery and/or gas operated scraping devices is prohibited.
   
iii. Starting at the edge of the component, scrape the paint away from the surface. Take care to not damage the substrate.
   
iv. Where possible, remove paint in large continuous sections.
   
v. Collect removed paint on drop cloths placed directly below the component being scraped.
   
vii. HEPA vacuum any dust that may have accumulated behind the component removed.

b. Preparation for torch cutting of components.
   
i. Perform the limited removal of lead based paint coatings and primers, at increments of four (4) feet, to facilitate the removal of lead based paint for the use of cutting torches on bare metal to removal sections of components.
   
ii. The limited paint removal shall expose bare metal, free of all coatings, four (4) inches out from the area to be cut.
   
iii. Limited paint removal shall be accomplished using HEPA vacuum needle guns and/or chemical paint remover.
   
iv. Utilize torches to cut through bare metal for component removal, ensuring that heat from the torch does not impact any adjacent lead based paint.

c. Vacuum Water Blasting
   
i. The Contractor shall utilize the equipment in strict conformance with the Manufacturer's specifications.
   
ii. The blast head shall remain in contact with the surface at all times.
   
iii. The Contractor shall implement control measures to capture and/or prevent the migration of water from outside the work area.
   
iv. Waste water generated from the project shall be containerized and undergo a Toxicity Characteristic Leachate Procedure (TCLP) test to determine the method of waste disposal (hazardous versus non-hazardous).

d. Strippable Chemical Solvent
   
i. The chemical stripper shall be troweled, brushed or spray applied. Application thickness of the material shall be determined by the sample test patches. The stripper shall not be methylene-chloride based.
   
ii. The dwell-time for the paint stripper shall be determined by the evaluation of the sample test patches. Once a proper dwell time is
determined, the Contractor shall remove the paint and chemical stripping compound onto the polyethylene ground cover or directly into 55-gallon drums. Any remaining residue shall then be washed down with a detergent and water to reveal the bare surface. Wash down of these surfaces is required to remove any remaining residue left by the chemical stripper. The washdown water shall be contained as specified in this Technical Specification Section. All water and residue shall be removed by using a wet vacuum system.

iii. Apply paste type chemical stripper material to the existing painted surfaces by spray application, and simultaneous application of fibrous laminated cloth, where applicable.

iv. Remove all spent chemical stripper, fibrous laminated cloth, and old paint from the substrate manually.

v. Provide low pressure fresh water rinse for cleaning of the substrate to remove any visible residual of remover and old paint.

vi. Special care must be taken to remove chemical stripper materials before they dry or harden, to prevent damaging the surfaces being treated during the removal process. Any tools used shall be made of natural, non-abrasive materials.

vii. When utilizing a chemical stripper, the Contractor must determine (by contacting the Manufacturer) if the abated surface must be neutralized prior to subsequent paint application. The Contractor must also determine if neutralization of the surface is required even if the surface will remain unpainted after paint removal.

viii. Waste water generated from the project shall be containerized and undergo a Toxicity Characteristic Leachate Procedure (TCLP) test to determine the method of waste disposal (hazardous versus non-hazardous).

e. HEPA Vacuum Needle Gun

i. Maintain HEPA vacuum attachment in operation during removal operation.

ii. Select proper shroud to match the configuration of the surface being treated. The shroud shall remain in contact with the surface at all times.

iii. HEPA vacuum needle guns shall only be utilized for metal surfaces.

f. Core Penetrations and Drilling

i. Maintain HEPA vacuum attachment in operation during the creation of core penetrations and/or drilling through surfaces coated with paint, shellac, varnish, etc. Select proper shroud to match the configuration of the surface being treated and for attachment to the coring/drilling device. The shroud shall remain in contact with the surface at all times.

ii. Alternatively, core penetrations/drilling through surfaces shall be via contact through a wet sponge over the surface or viscous foam applied to the surface where the penetrations/drilling shall occur.

iii. Sponges utilized for procedures referenced herein shall only be used once per penetration. Viscous foam shall be collected and surfaces where the foam has potentially run along the surface due to gravity or residual shall be wet-wiped clean. All sponges, foam and cloths/rags used for wet-wiping off foam from surfaces shall be included with the
g. Component Removal
   i. Mist surfaces when components are slated for removal and disposal.
   ii. Remove any screws or other fasteners.
   iii. Using a flat pry instrument and a hammer, carefully pry the affected building component away from the surface to which it is attached. The pry bar should be inserted into the seam at the nail or other fastening device at one end of the component and pried away by applying pressure. This process should be repeated at each subsequent fastening location until the end of the component is reached as the component is freed. Care shall be applied not to damage any components to remain.
   iv. Carefully remove or bend back all nails (or other fastening devices) and wrap removed components and nails in polyethylene sheeting and seal airtight with high quality spray-glue and duct tape. Treat sharp components (nails and edges) as necessary to prevent injury and puncturing of polyethylene sheeting.
   v. HEPA vacuum any dust that may have accumulated within the work area.

3. Coordinate with the Owner and/or Owner’s representative for a restroom that can be dedicated to workers for hygiene purposes, inclusive of washing hands, arms, face, etc., at the completion of each shift. These restrooms shall be HEPA vacuumed, wet-wiped clean and HEPA-vacuumed at the end of each work shift, to remove all visible dust and debris from floors, sinks, urinals, toilets, etc.

4. All disposable items, including mop heads, rags, personal protection equipment, etc., shall be treated as referenced in these Technical Specifications.

3.2 MINIMUM NEW JERSEY AIR QUALITY REQUIREMENTS
   A. Where general ventilation is inadequate to control air contaminants emitted from point sources within work spaces to below the Permissible Exposure Limit, such as that outlined above for lead by OSHA, other control measures shall be implemented, such as, but not limited to, negative pressure filtration equipment or an equivalent substitution.
   B. Renovation work and/or new construction that creates dust and particulates, gases, or other harmful substances in quantities hazardous to health shall be controlled by local ventilation or other protective measures for worker/occupant safety.
   C. Renovation work and/or new construction activities in occupied buildings shall be isolated, so as to confine contaminants, dust and debris within the work area. Means of isolation include, but are not limited to, physical barriers (hard construction and/or polyethylene sheeting), work area negative pressure differentials, completing work during minimal periods of occupancy, etc.
   D. Prior to re-occupancy, work areas shall be cleaned and ventilated, as necessary.
   E. Occupants/Trades shall be notified at least 24-hours prior, or promptly for emergencies, of work to be performed on the building that may introduce air contaminants.

3.3 PROJECT COMPLETION
   A. Clean-up: Maintain surfaces of the work area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the waste stream for TCLP testing to determine if the waste is hazardous or non-hazardous.
paint removal operation has been completed, clean the area of visible lead paint and dust contamination by vacuuming with a HEPA filtered vacuum cleaner and wet mopping the area.

B. Certification: The IH shall certify in writing that the lead paint and lead dust hazards have been abated via post-abatement dust wipe sampling. A representative number of dust wipes shall be collected from each work area to prove the abatement efforts adequately cleaned the area. Do not remove the lead control area (air filtration devices) or roped-off boundary and warning signs prior to receipt of the IH's certification.

Should the post-abatement dust wipe samples fail to achieve the clearance criteria, re-clean the work area and repeat the dust wipe clearance sampling. Repetitive dust wipe clearance sampling shall be paid for by the Contractor at no additional cost to the Building Owner.

3.4 WORKER SAFETY

A. The Contractor is responsible for ensuring all appropriate worker protection regulations are followed, inclusive of those of OSHA, Corporate policies and procedures, the project job site requirements, etc. Project job site requirements shall be provided to the Contractor upon Contract Award, or the day the project commences. Provisions herein apply to all Trade related work.

B. Enforcement of the Contractor’s on-site staff to comply with Health and Safety Compliance shall be the sole responsibility of the Contractor’s supervisory personnel. The Owner’s representative, the Owner and the Owner’s consultants/professional services, shall not be liable for the Contractor’s non-compliance with Health and Safety requirements. The exception shall be when the Contractor’s actions pose a potential health and safety risk to the Owner and its personnel and/or clients, and/or the Owner’s representative. The exception shall also apply for failure for the Contractor to comply with site rules and regulations. If such a risk occurs, the Owner, Facility and/or Owner’s representative shall Stop Work immediately to rectify the situation.

C. At a minimum, the Contractor shall ensure the following, which includes provisions within these Technical Specifications.

1. Respiratory Protection Program: Furnish each employee with a half face negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 12 months thereafter, as required by 29 CFR, Part 1926.62, 29 CFR, Part 1926.103, and 29 CFR, Part 1910.134. Establish and implement a respiratory protection program. Upon completion of the initial employee exposure assessment, adjust respiratory protection as required by 29 CFR, Part 1926.62.


3. Change Areas and Shower Facilities: Provide clean change areas within the physical boundary around the designated Lead Control Area. Upon completion of initial employee exposure assessment, adjust requirements in accordance with 29 CFR, Part 1926.62.

4. Personnel Protection: Personnel shall wear and use protective clothing and equipment, such as respirators, protection suits, eye protection, hard hats, appropriate foot and hand protection, etc. Eating, smoking, or drinking is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been given appropriate training and protective equipment.
5. It is anticipated that the Contractor will be utilizing power tools. The Contractor shall ensure compliance with the requirements of a hearing protection and conservation, as outlined in 29 CFR, Part 1910.95.

D. Safety and Health Compliance: In addition to the detailed requirements of this Specification, comply with laws, ordinances, rules and regulations of federal, state and local authorities regarding removing, handling, storing, transporting and disposing of lead waste materials. Comply with applicable requirements of the current issue of 29 CFR, Part 1910.1025. Submit matters regarding interpretation of standards to the owners for resolution before starting work. Where specification requirements and referenced documents vary, the most stringent requirement shall apply.

3.5 ADDITIONAL REQUIREMENTS

A. Demolition and/or construction work shall not generate visible emissions, as required by 40 CFR, Part 61, National Emissions Standard for Hazardous Air Pollutants (NESHAPs).

PART 4 WASTE HANDLING AND DISPOSAL

4.1 HAZARDOUS WASTE MANAGEMENT PLAN

A. The Hazardous Waste Management Plan shall comply with applicable requirements of federal, state and local hazardous waste regulations and addresses the following:

1. Identification of hazardous wastes associated with the work as defined in 40 CFR, Part 261.
2. Estimated quantities of wastes to be generated and disposed of.
3. Names and qualifications of each Contractor that will be transporting, storing, treating and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of USEPA, state and local hazardous waste permit applications, permits and USEPA identification numbers.
4. Names and qualifications (experience and training) of personnel who will be responsible for onsite management of hazardous wastes.
5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
6. Spill prevention, containment, and clean-up contingency measures to be implemented.
7. Work plan and schedule for waste containment, removal and disposal. Hazardous wastes shall be collected and containerized daily.
8. A locked dumpster or covered truck provided by the Contractor shall be used to store hazardous debris prior to removal at the conclusion of the job.

B. Waste management shall also be in compliance with the Site Waste Management Plan.

4.2 WASTE REQUIREMENTS

A. Waste storage on-site, transportation and disposal shall comply with all applicable waste regulations, which include, but are not limited to, the federal USEPA, DOT and the State of New Jersey waste regulations.

B. Collect a sample of the lead containing waste to determine if it is at or above the toxicity characteristic limit which classifies the waste as hazardous waste, defined as five (5) milligrams per liter (mg/L) lead concentration (USEPA regulation 40 CFR, Part 261.24). TCLP samples

C. If the waste classifies as a hazardous waste (i.e., greater than, or equal to, 5 milligrams per liter of lead concentration), the Contractor shall follow and implement all applicable hazardous waste regulations for the storage, labeling, transportation and disposal of the waste material. This includes, but is not limited to:

1. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing, which may produce airborne concentrations of lead particles.

2. Store removed paint, lead-contaminated clothing and equipment, and lead-contaminated dust and cleaning debris in U.S. Department of Transportation (49 CFR, Part 178) approved 55-gallon drums. Properly label each drum to identify the type of waste (49 CFR, Part 172) and the date lead-contaminated wastes were put into the drum. Obtain and complete the Uniform Hazardous Waste Manifest forms. Comply with land disposal restriction notification requirements as required by 40 CFR, Part 268:

   a. At least 14 days prior to delivery decide who will arrange for job site inspection of the drums and manifests by the Hazardous Waste Storage Facility personnel.

   b. As necessary, make lot deliveries of hazardous wastes to the Hazardous Waste Storage Facility to ensure that drums do not remain on the jobsite longer than 90 calendar days from the date affixed to each drum.

   c. Dispose of lead-contaminated waste material at an EPA and New Jersey Department of Environmental Protection approved hazardous waste treatment, storage, or disposal facility.


D. Disposal Documentation: Submit written evidence that the hazardous waste treatment, storage, or disposal facility is approved for lead disposal by the EPA and state or local regulatory agencies. Submit one (1) copy of the completed manifest, signed and dated by the transporter in accordance with 40 CFR, Part 262. The Contractor shall submit all required waste manifests prior to payment being issued by the Owner.

END OF SECTION 028313
SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

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

B. Design Mixtures: For each concrete mixture.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.

1.3 Related Requirements:

A. Refer to Specification Section 316613 “Helical Piles and Helical Anchors”.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete,

2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

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

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:
   a. Fly Ash: ASTM C 618, Class F or C.
   b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, graded.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches (38 mm) nominal for footings and 3/4 inch (19 mm) nominal for slabs.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.


2.4 ADMIXTURES


B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those
permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 VAPOR RETARDERS

A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 10 mils thick.

2.6 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2.7 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.
   1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
   2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
   3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

D. Proportion normal-weight concrete mixture as follows:
   1. Minimum Compressive Strength 4000 psi (27.6 MPa) at 28 days.
   2. Maximum Water-Cementitious Materials Ratio: 0.5 for footings, 0.47 for interior slabs.
   3. Slump Limit 5 inches or 8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25 mm).
   4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.

2.8 FABRICATING REINFORCEMENT

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

2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
   1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
PART 3 - EXECUTION

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

3.2 VAPOUR RETARDERS
   A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
      1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

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

3.4 JOINTS
   A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
   B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
   C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

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

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to concrete surfaces.

2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch (6 mm).

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

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

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
SOILS AND FOUNDATION INVESTIGATION

Dr. James Still Office Stabilization
211 Church Road
Medford, Burlington County, New Jersey
DPMC Project No: P1200-00

February 25, 2020
File No. 21.0092036.00

PREPARED FOR:
Historic Building Architects, LLC
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February 25, 2020  
File No. 26.0092036.00  

Historic Building Architects, LLC  
213 West State Street  
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Attention: Ms. Lauren Johnson  

Report  
Soils and Foundation Investigation  
Dr. James Still Office Stabilization  
211 Church Road  
Medford, Burlington County, New Jersey  
DPMC Project No: P1200-00  

Introduction  

This report presents the results of a soils and foundation investigation performed by Melick-Tully and Associates, a Division of GZA GeoEnvironmental, Inc. (MTA) for proposed modifications to an existing historic building identified as the Dr. James Still Office Historic Site in Medford, Burlington County, New Jersey. The address of the existing building is identified as 211 Church Road which is located on the north side of Church Road and west of Medford Mount Holly Road. The approximate location of the site is shown on the Site Location Map, Plate 1. This report was prepared in general accordance with our proposal dated January 6, 2020.

Proposed Construction  

We understand that the building modifications would include removal of more recent additions to the original structure as well as reconstruction of a portion of the original structure experiencing distress. The existing one-story building measuring approximately 40 feet by 25 feet is experiencing localized settlement and cracking of the parged foundation walls which your structural engineer suggested was a result of the existing stone foundation
wall being undermined due to the presence of a dug well in the northwest corner of the building, the location of which is shown on the Basement and First Floor Demolition Plan provided to us. Therefore, your structural engineer has recommended that the basement wall at this location be removed and reconstructed with new foundations.

**Purpose and Scope of Services**

The purpose of our services was to:

1) explore the subsurface soil and groundwater conditions at one accessible location as close as possible to the existing building where the distress is prevalent;

2) estimate the relevant geotechnical engineering properties of the encountered materials;

3) evaluate the site foundation requirements considering the anticipated construction and encountered subsurface conditions;

4) recommend an appropriate type of foundation or possible remedial measures for support of the existing portion of the building experiencing distress, and provide geotechnical-related foundation design and installation criteria, including an estimate of the Site Class as defined by the International Building Code 2018, New Jersey Edition, for seismic design purposes;

5) provide estimated lateral earth pressure and drainage criteria for use in the design of below-grade building walls, if appropriate;

6) discuss stabilization or removal/backfill of the existing well located in the northwest corner of the existing basement; and

7) discuss appropriate earthwork operations or considerations consistent with the proposed construction and encountered subsurface conditions.

To accomplish these purposes, a subsurface exploration program consisting of one supervised test boring was completed. The boring was advanced using a truck-mounted, hollow-stem auger drill rig and extended to a depth of 26 feet below the existing surface grade. At your request to limit disturbance, our investigation was limited to only one test boring. The approximate location of the boring is shown in relation to existing site features on the Plot Plan, Plate 2.
All field work was performed under the direct technical supervision of a geotechnical engineer from MTA. Our representative located the boring in the field by tape measurement from the existing building, maintained a continuous log of the boring as the work proceeded and supervised the soil sampling operations.

Numerous closely spaced soil samples were obtained from the boring using the procedures of the Standard Penetration Test. Detailed descriptions of the encountered subsurface conditions are indicated on the Boring Log, Plate 3. The soils were visually classified in general accordance with the procedures of the Unified Soil Classification System described on Plate 4.

All soil samples obtained from the boring were returned to our soil mechanics laboratory for further examination and laboratory testing. A laboratory testing program of natural moisture content determinations and mechanical grain-size analyses was completed on selected soil samples to assist in their classification and evaluation of engineering properties. The water content tests are shown on the boring log, and the results of the grain-size analyses are presented on Plate 5, Gradation Curves.

The following discussions of our findings and recommendations are subject to the Limitations attached as Appendix I to this report.

**Site Conditions**

**Surface Conditions:** The property is mostly an unimproved grass lawn around the existing structure with a few trees located adjacent to Church Road. The historic structure is a one-level wood-frame structure with a basement/crawl space level. The building is in disrepair and exhibiting foundation wall cracking. Selected photographs of the building are provided in Appendix II. A gravel parking lot is located adjacent to and west of the structure.

Topographic information was not provided to us, but the area of the boring is shown as around Elevation +64 feet on Google Earth.
**Subsurface Conditions:** The boring encountered approximately 6 inches of topsoil at the ground surface. The topsoil was underlain by a 6-inch layer of silty sand fill containing brick fragments. The fill was underlain by loose to medium dense sands that extended to the maximum depth explored, 26 feet below grade. A layer of stiff silty clay was encountered within the sand stratum between 18 and 21 feet. The soils encountered below 4 feet contained glauconite. Glaucolithic soils have high percentages of mica and are sandy by gradation but behave similar to clayey soils during construction. High moisture contents are common for glauconitic sandy soils.

Groundwater was encountered in the boring at a depth of approximately 10 feet beneath the existing grade and will be subject to seasonal fluctuations.

**Findings and Recommendations**

**General:** Based on the results of our exploration, it is our opinion that there are two potential options for remediation of the existing basement wall and abandoned well. The strength of soils in the well area and underlying the existing wall could be improved by means of compaction grouting. By using compaction grouting, the soils below the distressed area may be able to be stabilized, and the existing wall may be able to be repaired once the ground improvement has occurred and foundation support re-established. If it is determined that the existing wall cannot be repaired in place, it could be removed, and a new wall and conventional shallow foundations could be constructed atop the improved soils.

A second potential support option would be to remove and reconstruct the basement wall atop new helical piles which extend below the bottom of the adjacent abandoned well into the medium dense deeper native soils below the dug well. Further discussions of these options are discussed below.

**Compaction Grouting:** Compaction grouting is accomplished by injecting a low viscosity grout into the soil’s pore space to create grouted columns and improve the density and strength of the adjacent underlying granular soils. By densifying the soil in place below the existing foundations and within the well, the existing basement wall could
potentially remain in place from a geotechnical support viewpoint, and assuming the existing distressed wall can be repaired in place from a structural viewpoint without complete removal of the wall to maintain the historic nature of the overall construction. If it is necessary that the basement wall be completely removed and replaced within the distressed area, the new basement foundation wall could then be constructed atop the densified sandy soils and the need to overexcavate any loose soils, particularly in the abandoned well area, would be eliminated by performing the compaction grouting.

Compaction grouting is performed by specialty contractors under a design-build scenario. We have been in contact with a contractor who performs this type of work who has indicated that he believes this is a viable solution for this project. If desired, we could put you in direct contact with them to further discuss this option so that they can prepare a grouting plan. The area where foundation repair is required would need to be identified to them by the structural engineer. The grouting plan should be reviewed for comment by both MTA and the structural engineer.

Helical Piles: A second option for supporting new foundations and preventing potential future settlement due to the presence of loose sandy soils associated with the well would be to support the reconstructed basement wall with helical piles. With this option, the abandoned well could be left as is with the new foundation wall supported atop a grade beam which would be supported by the helical piles extending into the natural soils at depth below the well bottom.

It is our opinion that helical piles could derive their support from the natural dense silty sands and/or silty clay present at depths of about 15 to 25 feet below the existing ground surface and could develop ultimate axial capacities of 10 to 20 tons per pile, depending on the pile section and helix configuration used. Helical piles are installed by specialty contractors, and the actual design and determination of the allowable capacities and required methods and installation torque values would be required to be provided by a licensed professional
engineer retained by the specialty contractor. It is expected that the piles would extend to depths of about 25 feet below grade assuming subsurface conditions are consistent with those encountered in the boring, and the dug well does not adversely impact helical pile installation.

Field verification of helical pile capacity is usually determined by correlation of the desired capacity to a minimum torque measured in the field. The contractor should submit details of his required resistance for the design capacity and monitoring including calibration curves for torque gauges used to verify capacities.

The current International Building Code indicates that pile load tests are not necessary if piles are designed for gross compressive strengths of less than 40 tons per pile. The helical piles would have to be installed to the specified embedment depth and torsional resistance criteria determined by the registered design professional and a minimum factor of safety of 2 would be required by IBC for axial capacities and 3 for tension/uplift capacities.

The new wall could then be constructed atop a grade beam designed to span between the helical piles.

Excavation support should be provided, wherever necessary, to protect the existing improvements to remain and to provide safe excavations. Underpinning, which could be done through the use of additional helical piles, may be necessary for the areas adjacent to the foundations exposed during the remedial work. The means of excavation support and underpinning should be left to the discretion of the contractor and will depend, in part, on the nature of adjacent improvements and allowable work area.

Once the helical piles are installed and new foundations/grade beams constructed, the basement wall could be reconstructed.

Additional Considerations: Under either foundation support option, the new basement wall and any excavation support systems if needed to complete the work should be designed to resist lateral earth pressures imposed by the adjacent soils, as well as surcharge loads due to adjacent construction activity, floor slab or foundation loads, etc. All below-grade walls should be provided with drainage to prevent the build-up of hydrostatic pressures.
Below-grade walls which are not fixed and thus free to rotate slightly during backfilling should be designed to resist earth pressures assuming an active earth pressure condition, while fixed walls should accommodate an at-rest condition. Excavated silty sand granular soils or imported sand would be preferred backfill materials, provided they are at moisture contents to permit proper compaction. Imported granular fill, if used, should consist of well-graded sand and gravel with less than 15 percent fines and a maximum particle size of 3 inches. Earth pressures from compacted silty sand materials or imported granular fill could be estimated assuming a total drained unit weight of 120 pounds per cubic foot and an angle of internal friction of 30 degrees.

The results of the laboratory tests indicate that the on-site sandy soils at the time of the investigation were generally in a very moist to wet condition and above their desirable moisture contents for compaction purposes, therefore, moisture conditioning will be necessary, especially during or after inclement or freezing weather, to compact these soils. The suitability of the excavated soils for reuse as backfill should be confirmed in the field at the time of construction by a geotechnical engineer. If, at the time of the work, the well can be cleaned of any existing loose soil, it could also be backfilled with lean concrete or flowable fill in order to mitigate potential future settlements in this area.

All backfill that will support structures or other improvements should be spread in layers of not more than 12 inches in loose thickness and be uniformly compacted to at least 95 percent of maximum dry density as determined by the ASTM D-1557 test procedure.

Backfill below non-structural areas should be compacted to at least 90 percent of maximum dry density to limit potential for backfill settlement. The groundwater level encountered in the boring suggests that the water table is generally below the basement level, and there were no reports of basement water problems. However, soil mottling suggests the periodic saturation, possibly perched could occur, and basement drainage could be
considered as a precaution, especially if the basement drainage history is unknown. If any basement or foundation
drains are uncovered during the restoration work, they should be restored or at least improved.

Groundwater was encountered in the boring at a depth of approximately 10 feet below grade. Mottling, as well
as moist to wet soils, was also observed in the boring above the observed groundwater level around 4 feet in
depth suggesting that seepage saturation occurs at higher levels on a seasonal basis. Groundwater seepage
conditions should be expected to vary seasonally and could be encountered in site excavations, particularly during
and following wet periods, and the contractor should be required to provide all dewatering as necessary to
maintain relatively dry excavations during the work. It is anticipated that pumping from sumps or trenches located
adjacent to the site excavations could be used for dewatering most shallow excavations. Control of surface runoff
should also be provided to prevent inundation of subgrades and flooding of excavations during and after
construction. The areas around the building should be sloped away from the structure to prevent runoff from
accumulating in the backfill envelope.

We recommend that all site excavations be performed in accordance with OSHA safety guidelines and any other
local regulations. Based on the results of our study, we believe that the soils would generally be classified as Type
"C" soil by OSHA excavation guidelines.

Seismic Design Criteria: Based on our review of the boring information and our knowledge of the regional geology,
it is our opinion that the seismic design may be based on a Site Class "D" as determined by the 2018 New Jersey
IBC Building Code.

Foundation Design Criteria: Following ground improvement by compaction grouting, new foundations and the
reconstructed basement wall may be supported by conventional shallow foundations that derive their support
from the improved soil. Foundations deriving their support directly from these materials could be designed to
impose a maximum allowable net bearing pressure of up to 3,000 pounds per square foot, with anticipated post-restoration settlements of less than 1/2 of 1 inch.

We recommend that all foundations should be established at least 3 feet below the adjacent exterior grades, or deeper if required by local building code, to provide protection from frost penetration. New foundations should also match the existing foundation levels whenever practical. We recommend that all foundation subgrade soils be observed by a qualified engineer to confirm adequate bearing materials are present.

If helical piles are the desired option, we would recommend that MTA be contracted to observe the helical pile installation activities to confirm the piles are installed to the desired torque values.

The following Plates and Appendices are attached and complete this report:

Plate 1 – Site Location Map
Plate 2 – Plot Plan
Plate 3 – Boring Log
Plate 4 – Unified Soil Classification System
Plate 5 – Gradation Curves
Appendix I – Limitations
Appendix II – Selected Photographs

Respectfully submitted,

MELICK-TULLY and ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

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Assistant Project Manager

Robert E. Schwankert, P.E.
Consultant/Reviewer

Mark R. Denno, P.E.
Principal

CSK:MRD/csk
CHURCH ROAD

KEY:  B-1  NUMBER AND APPROXIMATE LOCATION OF BORINGS PERFORMED FOR THIS STUDY

NOTES:  1. This drawing is part of Melick-Tully and Associates, a Division of GZA, Report No. 26.0092036.00 and should be read together with the report for complete evaluation.

2. General layout was obtained from a drawing prepared by Historic Building Architects, LLC, entitled "General Notes and Site Plan", dated 1/31/19, scale 3/32" = 1'-0".

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PROPOSED HISTORIC BUILDING MODIFICATIONS
MEDFORD, BURLINGTON COUNTY, NJ
HISTORIC BUILDING ARCHITECTS, LLC

PLOT PLAN

<table>
<thead>
<tr>
<th>JOB NO.</th>
<th>FILE NO.</th>
<th>DR. BY</th>
<th>CHK. BY</th>
<th>DATE</th>
<th>SCALE</th>
<th>PLATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.0092036.00</td>
<td>-</td>
<td>VJD</td>
<td>CSK</td>
<td>2/12/20</td>
<td>1&quot; = 20'</td>
<td>2</td>
</tr>
</tbody>
</table>
**TEST BORING LOG**

**MTA, a Division of GZA**  
**GeoEnvironmental, Inc**  
**Engineers and Scientists**  
**Historic Building Architects**  
**Medford, NJ**

**EXPLORATION NO.:** B-1  
**SHEET:** 1 of 1  
**PROJECT NO.:** 26.0092036.00  
**REVIEWED BY:** Cory S. Karinja

Logged By: Tyler Rockhill  
Drilling Co.: CDI  
Rig Model: 8515  
Boring Location: See Plan  
Final Boring Depth (ft.): 26  
Driller: Alan/George/Gory  
Ground Surface Elev. (ft.):  
Date Start - Finish: 2/5/2020 - 2/5/2020

<table>
<thead>
<tr>
<th>Hammer Type:</th>
<th>Hammer Weight (lb.)</th>
<th>140</th>
<th>Hammer Fall (in.):</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auger or Casing O.D./I.D Dia. (in.):</td>
<td>4.25/4</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Groundwater Depth (ft.)</th>
<th>Date</th>
<th>Time</th>
<th>Water Depth</th>
<th>Stab. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/5/20</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Sample No.</th>
<th>Depth (ft.)</th>
<th>Blows (per 6 in.)</th>
<th>SPT Value</th>
<th>Symbol</th>
<th>Sample Description and Identification</th>
<th>Depth (ft.)</th>
<th>Water Content (%)</th>
<th>Remark</th>
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<tbody>
<tr>
<td>0.2</td>
<td>S1</td>
<td>0-2</td>
<td>7 5</td>
<td>6 5</td>
<td>SM</td>
<td>6&quot; Topsoil</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-4</td>
<td>S2</td>
<td>2-4</td>
<td>3 4</td>
<td>3 5</td>
<td></td>
<td>6&quot; Fill - Brown fine to medium sand, little silt, with brick fragments</td>
<td>2-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td>S3</td>
<td>4-6</td>
<td>11 16</td>
<td>16 13</td>
<td>SM</td>
<td>Brown fine to medium sand, little silt (moist)(medium dense)</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-8</td>
<td>S4</td>
<td>6-8</td>
<td>14 17</td>
<td>16 16</td>
<td></td>
<td>Olive fine to medium sand, some silt, with dark yellow-brown motiles (glaucitic)(moist)(dense)</td>
<td>6-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-10</td>
<td>S5</td>
<td>8-10</td>
<td>8 9</td>
<td>12 12</td>
<td>SM</td>
<td>- grading to light brown (dense)</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-12</td>
<td>S6</td>
<td>10-12</td>
<td>6 16</td>
<td>11 6</td>
<td></td>
<td>- grading to little silt (medium dense)</td>
<td>10-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-14</td>
<td>S7</td>
<td>12-14</td>
<td>2 2</td>
<td>1 2</td>
<td></td>
<td>- grading (wet)</td>
<td>12-14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-16</td>
<td>S8</td>
<td>14-16</td>
<td>3 3</td>
<td>4 3</td>
<td>SM</td>
<td>- grading (loose)</td>
<td>14-16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-18</td>
<td>S9</td>
<td>16-18</td>
<td>4 6</td>
<td>8 7</td>
<td></td>
<td>Dark gray fine sand, little silt (moist)(loose)</td>
<td>16-18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-20</td>
<td>S10</td>
<td>18-20</td>
<td>6 9</td>
<td>10 11</td>
<td>CL</td>
<td>- grading (medium dense)</td>
<td>18-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-22</td>
<td>S11</td>
<td>20-22</td>
<td>3 5</td>
<td>5 6</td>
<td></td>
<td>Dark gray silty clay, little fine to medium sand (moist)(very stiff)</td>
<td>20-22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22-24</td>
<td>S12</td>
<td>22-24</td>
<td>4 4</td>
<td>3 3</td>
<td>SM</td>
<td>Dark gray fine to medium sand, little clayey silt (moist)(loose)</td>
<td>22-24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-26</td>
<td>S13</td>
<td>24-26</td>
<td>4 4</td>
<td>8 11</td>
<td></td>
<td>- grading (medium dense)</td>
<td>24-26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of exploration at 26 feet. Groundwater seepage encountered at 10'

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Plate No.: 3
<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>LETTER SYMBOL</th>
<th>TYPICAL DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE GRAINED SOILS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAVEL &amp; GRAVELY SOILS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(More than 50% of coarse fraction RETAINED on No. 4 Sieve)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN GRAVELS</td>
<td>GW</td>
<td>Well-graded gravels, gravel-sand mixtures, little or no fines.</td>
</tr>
<tr>
<td>(Little or no fines)</td>
<td>GP</td>
<td>Poorly-graded gravels, gravel-sand mixtures, little or no fines.</td>
</tr>
<tr>
<td>GRAVELS WITH FINES</td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures.</td>
</tr>
<tr>
<td>(Appreciable amount of fines)</td>
<td>GC</td>
<td>Clayey gravels, gravel-sand-clay mixtures.</td>
</tr>
<tr>
<td>SAND AND SANDY SOILS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(More than 50% of coarse fraction PASSING a No. 4 Sieve)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sands, gravelly sands, little or no fines.</td>
</tr>
<tr>
<td>(Little or no fines)</td>
<td>SP</td>
<td>Poorly-graded sands, gravelly sands, little or no fines.</td>
</tr>
<tr>
<td>SANDS WITH FINES</td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures.</td>
</tr>
<tr>
<td>(Appreciable amount of fines)</td>
<td>SC</td>
<td>Clayey sands, sand-clay mixtures.</td>
</tr>
<tr>
<td>FINE GRAINED SOILS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SILTS AND CLAYS</td>
<td>ML</td>
<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.</td>
</tr>
<tr>
<td>Liquid limit LESS than 50</td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.</td>
</tr>
<tr>
<td>SILTS AND CLAYS</td>
<td>OL</td>
<td>Organic silts and organic silty clays of low plasticity.</td>
</tr>
<tr>
<td>Liquid limit GREATER than 50</td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous fine sand or silty soils.</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOILS</td>
<td>PT</td>
<td>Peat, humus, swamp soils with high organic contents.</td>
</tr>
</tbody>
</table>

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

<table>
<thead>
<tr>
<th>GRADATION*</th>
<th>COMPACTNESS* sand and/or gravel</th>
<th>CONSISTENCY* clay and/or silt</th>
<th>RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Finer by Weight</td>
<td>Relative Density</td>
<td>CONSISTENCY* clay and/or silt</td>
<td>Range of Shearing Strength in Pounds per Square Foot</td>
</tr>
<tr>
<td>Trace</td>
<td>0% to 10%</td>
<td>Loose</td>
<td>0% to 40%</td>
</tr>
<tr>
<td>Little</td>
<td>10% to 20%</td>
<td>Medium Dense</td>
<td>40% to 70%</td>
</tr>
<tr>
<td>Some</td>
<td>20% to 35%</td>
<td>Dense</td>
<td>70% to 90%</td>
</tr>
<tr>
<td>And</td>
<td>35% to 50%</td>
<td>Very Dense</td>
<td>90% to 100%</td>
</tr>
<tr>
<td>Hard</td>
<td>Greater than 400</td>
<td>Very Stiff</td>
<td>2000 to 4000</td>
</tr>
</tbody>
</table>

*Values are from laboratory or field test data, where applicable. When no testing was performed, values are estimated.

UNIFIED SOIL CLASSIFICATION SYSTEM
SOIL CLASSIFICATION CHART

Melick-Tully and Associates, a Division of GZA GeoEnvironmental, Inc. PLATE 4
APPENDIX I - Limitations
APPENDIX I

Limitations

A. Subsurface Information

Locations: The location of the exploration was approximately determined by tape measurement from existing site features. The elevation of the exploration was not available. The location of the exploration should be considered accurate only to the degree implied by the method used.

Interface of Strata: The stratification lines shown on the individual log of the subsurface exploration represent the approximate boundaries between soil types, and the transitions may be gradual.

Field Logs/Final Logs: A field log was prepared for the exploration by a member of our staff. The field log contains factual information and interpretation of the soil conditions between samples. Our recommendations are based on the final log as shown in this report and the information contained therein, and not on the field log. The final log represents our interpretation of the contents of the field log, and the results of the laboratory observations and/or tests of the field samples.

Water Levels: Water level readings have been made in the exploration at times and under conditions stated on the individual log. These data have been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater will occur due to variations in rainfall, temperature, and other factors.

Pollution/Contamination: Unless specifically indicated to the contrary in this report, the scope of our services was limited only to investigation and evaluation of the geotechnical engineering aspects of the site conditions, and did not include any consideration of potential site pollution or contamination resulting from the presence of chemicals, metals, radioactive elements, etc. This report offers no facts or opinions related to potential pollution/contamination of the site.

Environmental Considerations: Unless specifically indicated to the contrary in this report, this report does not address environmental considerations which may affect the site development, e.g., wetlands determinations, flora and fauna, wildlife, etc. The conclusions and recommendations of this report are not intended to supersede any environmental conditions which should be reflected in the site planning.

B. Applicability of Report

This report has been prepared in accordance with generally accepted soils and foundation engineering practices for the exclusive use of Historic Building Architects, LLC for specific application to the design of the proposed building modifications. No other warranty, expressed or implied, is made.

C. Reinterpretation of Recommendations

Change in Location or Nature of Facilities: In the event that any changes in the nature or design are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.
**Changed Conditions During Construction:** The analyses and recommendations submitted in this report are based in part upon the data obtained from one test boring performed for this study. The nature and extent of variations throughout the site may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

**Changes in State-of-the-Art:** The conclusions and recommendations contained in this report are based upon the applicable standards of our profession at the time this report was prepared.

**D. Use of Report by Prospective Bidders**

This soil and foundation engineering report was prepared for the project by Melick-Tully and Associates, a Division of GZA GeoEnvironmental Inc. (MTA) for design purposes and may not be sufficient to prepare an accurate bid. Contractors utilizing the information in the report should do so with the express understanding that its scope was developed to address design considerations. Prospective bidders should obtain the owner’s permission to perform whatever additional explorations or data gathering they deem necessary to prepare their bid accurately.

**E. Construction Observation**

We recommend that MTA be retained to provide on-site soils engineering services during the earthwork construction and foundation phases of the work. This is to observe compliance with the design concepts and to allow changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.
APPENDIX II – Selected Photographs
SECTION 040343 - HISTORIC MASONRY RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Extent of masonry restoration work:
   1. Rake out and repoint exposed masonry fieldstone in preparation for new stucco.
   2. Dismantle and rebuild existing fieldstone foundation walls as noted on drawings.
   3. Rake our and repoint brick windowsills.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.
   2. Section 028200 “Asbestos Abatement and Disposal”.
   3. Section 092400 “Stucco Restoration”.

C. Existing stucco must be removed in accordance with hazardous abatement requirements described in Section 028200.

1.3 DEFINITIONS

A. Low-Pressure Spray: 100 to 300 psi pressure meters must be installed on equipment at all times.

B. Repointing: The process of raking out (removing) mortar and replacing it with new mortar.

C. Pointing: The process of placing new mortar in existing joint spaces that have previously been raked out. The term does not include the raking out process.

D. Tuck Pointing: The process of touching up existing mortar joints by filling in recesses with new mortar, without first raking out the joints.

E. Dutchman: Partial stone replacement. Installation of a new stone into an existing stone.

F. Control Sample: A sample of the quality of work representing the minimum quality required of the contractor.

G. Stone Resetting: Careful removal of unstable stone units such as caps, sills and headers; and severely spalled bricks. Rebuilding or reinstallation and setting of masonry units with anchors.

H. Retooling: The resurfacing of existing damaged stone in-situ using hand tools.
1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.

B. Shop Drawings: For the following:
   1. Foundation walls to be rebuilt. Drawings to be coordinated with concrete footing work.
   2. New anchors, including drilled-in stainless steel pins. See attached detail.

C. Samples for Verification: Before erecting mockup, submit samples of the following:
   1. Each type of sand used for pointing mortar.
      a. For blended sands, provide Samples of each component and blend sample.
      b. Identify sources, both supplier and quarry, of each type of sand.
   2. Each type of pointing mortar in form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or masonry channels.
      a. Include with each sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.
   3. Each type of anchor pin to be used indication location to be used with product data attached to submittal.

D. Qualification Data: For restoration specialists including field supervisors, chemical cleaner manufacturer and consolidant manufacturer.

E. Restoration Program: For each phase of restoration process, provide detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials on building and Project site.
   1. Include methods for keeping pointing mortar damp during curing period.
   2. If materials and methods other than those indicated are proposed for any phase of restoration work, provide a written description, including evidence of successful use on comparable projects, and a testing program to demonstrate their effectiveness for this Project.

F. FIELD-CONSTRUCTED MOCK-UPS

Prior to start of general masonry restoration, prepare the following sample panels on the building as directed by the Architect. Obtain Architect’s review of visual qualities before proceeding with the work. Retain acceptable panels in undisturbed condition, suitably marked on the building and noted on drawings submitted to the Preservation Architect, during construction as a standard for judging completed work.

1. Repointing: Prepare 2 separate sample areas of approximately 3' high by 3' wide for each type of repointing mortar required, at least one for demonstrating methods and quality of workmanship expected in removal of mortar from joints at both brick and stone and the other for demonstrating quality of materials and workmanship expected in pointing mortar joints.
2. **Stone Rebuilding**: Prepare a mock up demonstrating ability to rebuild stone foundation wall to demonstrate skill and quality of workmanship.

3. The Contractor shall prepare up to three additional mockups of each mortar, joint type, and mortar color without further compensation. Approved test panel(s) shall become part of the work and shall serve as the quality standard for all subsequent work.

4. **Source of Materials**: Identify the source of each appropriate material for repointing and surface cleaning. Maintain the same products throughout for consistency of work.

### 1.5 QUALITY ASSURANCE

A. **Restoration Specialist Qualifications**: Engage an experienced masonry restoration firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. A minimum of 5 years successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration processes and operations indicated.

1. **Field Supervision**: Restoration specialist firm shall maintain experienced full-time supervisors on Project site during times that stone restoration and cleaning are in progress. Supervisors shall not be changed during Project except for causes beyond control of restoration specialist firm.

2. **Restoration Worker Qualifications**: Persons who are experienced and specialize in restoration work of types they will be performing.

B. **Source Limitations**: Obtain each type of material for stone restoration (stone, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.

C. **MSDS**: Maintain file of all material safety data sheets for products brought onto site.

D. **Work Hazards**: Strict compliance with all applicable OSHA requirements is essential.

### 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products. Protect from freezing, moisture, and contamination.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

D. Store lime putty covered with water in sealed containers.

E. Store sand where grading and other required characteristics can be maintained and contamination avoided.
1.7 PROJECT CONDITIONS

A. Repoint mortar joints and repair stone only when air temperature and the substrate is between and 40 and 90 deg F and is predicted to remain so for at least 7 days after completion of work.

B. Do not work in temperatures below 40 deg F when the substrate is colder than 40 deg F or when the temperature is expected to fall below 40 deg F for 48 hours after installation of repair mortars. Building an enclosure and heating areas to maintain this temperature may only be done with the written approval of the material manufacturer. Remove work exposed to lower temperatures as directed by the Preservation Architect. Protect repaired mortar from direct sunlight and wind using protection measures reviewed when the ambient air temperature exceeds 70 deg F. Do not use or prepare mortar when ambient air temperature is above 90° F at the location of the work.

C. Hot Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 90 deg F and above.

D. Prevent mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately grout and mortar in contact with exposed masonry and other surfaces.

E. Protect sills, ledges, projects, and all surfaces from mortar droppings.

F. Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and material of other trades, the building, and the public.

1.8 SEQUENCING AND SCHEDULING

A. Order replacement materials at earliest possible date, to avoid delaying completion of the Work.

B. Order sand for repointing mortar immediately after approval of Tray Samples. Take delivery of and store at Project site a sufficient quantity of sand and pigment to complete Project. Additional orders of sand and pigment are not permitted without resubmittal of samples.

C. Perform stone restoration work in the following sequence:
   1. Rebuild existing stone, foundation walls reusing existing stone.
   2. Rake out joints that are to be repointed.
   3. Point mortar joints.
   4. Inspect for open mortar joints and repair.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be
incorporated into the Work include, but are not limited to, the products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 STONE MATERIALS

A. Stone General: No replacement stone is anticipated. Contractor is responsible for carefully salvaging existing stone for use. The existing stone is found local in the Pinelands and is referred to as “bog” ironstone.

B. Building (Common) Brick: ASTM C 62, Grade SW.

1. Unit Compressive Strength: Match existing.
2. Size: Match size of existing brick, or if not adjacent to face brick, match existing brick plus or minus 1/8” for width and height and plus or minus ¼ inch for length.
3. Supply salvaged brick to match existing.

2.3 MORTAR MATERIALS FOR FIELDSTONE FOUNDATION AND BRICK WINDOW SILLS

A. Natural Hydraulic Lime:

1. Product: NHL 3.5
2. Natural Hydraulic Lime Manufacturer: St. Astier, France

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

1. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match. Except for joints less than ¼” use aggregate graded with 100% passing the #4 sieve for fieldstone walls, and #8 sieve for all other joints.
2. Color: Natural sand of color necessary to produce required mortar color.
3. Provide sand with rounded edges.
   a. Manufacturer: George Schofield Co. Inc., 831 E. Main Street, Bridgewater, NJ 08807, Tel 800-827-6257.
   b. Sand Type 125

C. Water: ASTM C 270, potable, pH neutral.
2.4 MORTAR REPLICAION

A. Repointing Mortar: The replication mortar was prepared using the following mixture.
   1. 1 part Natural Hydraulic Lime to 3 parts #125 George Schofield Sand.

2.5 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. Do not use admixtures of any kind in mortar.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from Historic Masonry restoration work.

B. Prevent mortar from staining face of surrounding masonry and other surfaces.

   1. Cover sills, ledges, and projections to protect from mortar droppings.
   2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
   3. Immediately remove mortar in contact with exposed masonry and other surfaces.
   4. Clean mortar splatters from scaffolding at end of each day.

3.2 STONE REBUILDING

A. At locations indicated, carefully dismantle stone and salvage for reuse.

B. Support and protect remaining stonework 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 masonry units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole stone units as possible.
1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
2. Remove sealants by cutting close to stone with utility knife and cleaning with solvents.
3. Store stone for reuse, as indicated.
4. Deliver cleaned stone not required for reuse to Owner, unless otherwise directed.

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

F. Rebuild stone with salvaged stone, or with new stone matching existing stone (not anticipated).
   1. Do not allow face bedding of stone. Before setting, inspect to verify that each stone has been cut so that when it is set in final position, natural bedding planes are essentially horizontal and pitch downward and outward. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
   2. Rake out mortar used for laying stone before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing stone, and at same time as repointing of surrounding area.

G. Install stone into bonding and coursing pattern of existing stone. Finish edges to blend with appearance of edges of existing stone.
   1. Maintain joint width for replacement stone to match existing joints.
   2. Use setting buttons or shims to set stone accurately spaced with uniform joints.

H. Set replacement stone with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting and set units in full bed of mortar unless otherwise indicated.
   1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
   2. Rake out mortar used for laying stone before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing stone, 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.

3.3 BRICK SILL REPAIR

A. This section applies to locations where the brick sills are loose and unstable and require repointing.

B. At locations indicated or where directed by Architect, remove brick. Carefully remove entire units from joint to joint, without damaging units, in a manner that permits replacement with full-size units or reuse of existing unit.

C. Remove in an undamaged condition as many whole brick units as possible.
   1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
   2. Remove sealants by cutting close to stone with utility knife or chisel and removing remaining sealant by grinding.
D. Clean masonry surrounding repaired areas by removing mortar, dust, and loose particles in preparation for replacement.

E. Re-install brick into sill. If cutting is required, use a motor-driven saw designed to cut masonry joints with clean, sharp, unchipped edges.

3.4 REPOINTING EXISTING MASONRY

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

1. All joints in areas indicated.
2. Joints where mortar is missing or where they contain holes.
3. Cracked joints where cracks can be penetrated at least 1/4 inch by a knife blade 0.027 inch thick.
4. Cracked joints where cracks are 1/8 inch or more in width and of any depth.
5. Joints where they sound hollow when tapped by metal object.
6. Joints where they are worn back 1/4 inch or more from surface.
7. Joints where they are deteriorated to point that mortar can be easily removed by hand.
8. Joints, other than those indicated as sealant-filled joints, where they have been filled with substances other than mortar.
9. Joints in areas marked for heavy retooling on the drawings.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows:

1. Remove mortar from joints to depth of joint width plus 2-1/2 times joint width, but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar.
2. Remove mortar from stonework and brick surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of stone units or widen joints. Replace or patch damaged stone or brick units as directed by Architect.
   a. Cut out mortar by hand with chisel and mallet. Do not use power-operated grinders without Architect's written approval based on submission by Contractor of a satisfactory quality-control program and demonstrated ability of operators to use tools without damaging stone. Quality-control program shall include provisions for supervising performance and preventing damage due to worker fatigue.
   b. Cut out center of mortar joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and mallet. Strictly adhere to written quality-control program. Quality-control program shall include provisions for demonstrating ability of operators to use tools without damaging stone, supervising performance, and preventing damage due to worker fatigue.

D. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, rotted wood, rusted metal, and other deteriorated items.
E. Point joints as follows:

1. Rinse stonework-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 stonework-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 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. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing stone has worn or rounded edges, slightly recess finished mortar surface below face of stone to avoid widened joint faces. Take care not to spread mortar over edges onto exposed stone surfaces or to featheredge mortar.

4. When mortar is thumbprint hard, tool joints to match original appearance of joints. Remove excess mortar from edge of joint by brushing.

F. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours, including weekends and holidays.

1. 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.

2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

3.5 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.

1. Do not use metal scrapers or brushes.

2. Do not use acidic or alkaline cleaners.

B. During the work, remove from the site discarded cleaning and coating materials, rubbish, cans and rags at the end of each workday.

C. Wash adjacent woodwork and other non-masonry surfaces. Use detergent and soft brushes or cloths.

D. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

E. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash surfaces to remove mortar, dust, dirt, and stains.

F. Test masonry surface to confirm pH neutral range 6-8 and submit results to Architect as part of closeout.

END OF SECTION 040343
SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Framing repairs with dimension lumber.
   2. Wood blocking, cants, and nailers.
   3. Wood roof decking.
   4. Selective sistering of ceiling joists.
   5. Selective sistering of floor joists.
   7. Selective replacement of sill plates.
   8. Plywood panels for openings as noted on the drawings.

B. Related Requirements:
   1. Section 062013 “Exterior Finish Carpentry”

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
   3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent
testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

B. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

C. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":

1. Dimension lumber framing.
2. Timber.
3. Miscellaneous lumber.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

2.2 DIMENSION LUMBER FRAMING

A. Other Framing: grade per structural engineer’s drawings.
B. Species.
   1. Eastern Hemlock.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Blocking - Douglas Fir.
   2. Cants - Douglas Fir

B. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD DECK

A. General: All plywood to be in compliance with American Plywood Association Standards.

B. New Plywood Roof Deck: Use APA Underlayment Ext. grade, Marine plywood for moisture conditions Type PSI.
   1. APA Structural 1 Rated Sheathing Exterior.
   2. Face veneer shall be A grade. The veneer immediately adjacent to the face ply shall be B grade or better with no open characteristics over 1” across the grain, provided the face veneer is of Group 1 species of 1/16” minimum thickness before sanding. Back shall be B Grade or better.
   4. Thickness: 5/8” thick.
   5. Section Property Table: Touch-sanded.
   6. Edge Pattern: T&G
   7. Gap sheathing product no more than 1/8” to prevent buckling.
   8. Moisture Content: Provide plywood decking with 15% maximum moisture content.
   9. No preservative or pressure treatment permitted.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
   1. For all carpentry, provide fasteners of Type 316 stainless steel.
B. Nails, Brads, and Staples: ASTM F 1667.

C. Screws for Fastening to Metal Framing: ASTM C1002, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Do not splice structural members between supports unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PLYWOOD DECK INSTALLATION

A. Install new plywood sheets - staggered.

B. Secure roof decking with stainless steel attachments. See staggered pattern details.

3.4 PROTECTION

A. Provide water-resistive barrier over roof decking as the Work progresses to protect roof decking until roofing is applied.

B. If, despite protection roof decking becomes wet, replacement will be required.

C. Verify moisture contents.

END OF SECTION 061053
SECTION 062013 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Scope of Work

1. Repair of existing wood trim to include dutchman and replacement trim spliced into existing sound trim so as not to be visible as a repair from the ground.
2. Replace wood cornice as noted on drawings to include, cornice trim, acorn drop pendants, brackets, soffits, fascia and cove moldings. See also unit prices.
3. Careful removal of all paint and finishes as described in Section 099113 Exterior Painting.
4. All new replacement wood to match existing species, and to be old growth salvaged wood.

1.2 SUMMARY

A. Trim Includes but is not limited to:

1. All exterior wood trim noted on drawings.
2. Wood cornice, fascia and soffit.
3. Vertical board and 100% new batten siding.
4. Acorn drop pendants.
5. Base edge trim.

B. Related Requirements:

1. Section 013591 “Historic Treatment Procedures”
2. Section 061053 "Miscellaneous Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view.
3. Section 079200 “Joint Sealants”
4. Section 092400 “Stucco Restoration”
5. Section 099113 “Exterior Painting”

1.3 SEQUENCING AND SCHEDULING

A. Perform wood repair on existing historic fabric in the following sequence, which includes work specified in this and other Sections:

1. General Wood-Repair Sequence:
   a. Remove paint to a wood surface free of wood deterioration, loose paint, or loose wood fibers. See Specification 099113 “Exterior Painting.”
   b. Prepare wood surface to be free of wood deterioration, loose paint, or loose wood

c. Repair wood by full replacement and/or partial replacement (wood dutchman repair matching the wood species and grain orientation). No gaps are permitted at the perimeter of the repair that could allow for liquid or water penetration.

2. Reinstall wood components.

1.4 ACTION SUBMITTALS

A. General: Submit product data and manufacturer’s literature.

B. Shop Drawings:

1. Detailed photograph of each elevation and area of repair indicating scope of repair.
2. Submit a schedule showing the scope of repair work, indicate types of trim affected and types of repairs.
3. Provide a removal plan. Submit protection drawings for each window type. Provide bracing and all necessary shoring.

C. Samples for Initial Wood Selection: For each type of profile indicated. Also, provide a 6” length of the existing profile to be matched. Provide samples of all profiles requiring new replacement sections.

D. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

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

F. Samples for Verification:

1. For each species and cut of trim, with half of exposed surface finished; 50 sq. in.

G. Paint Removal Mockup: Prepare at least 3 mockups of paint removal using dry micro-abrasion process. All three techniques specified may require testing to determine the most appropriate finish removal process on the existing wood.

H. Mockups: Prepare mockups of historic treatment repair processes including paint removal, dutchman repair, and wood replacement to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation. Prepare mockups so that they are as inconspicuous as practicable.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber and other panels flat with wood spacers between each bundle to provide air circulation. Spacers shall be of dry wood (less than 15 percent moisture content) that will not stain the lumber, plywood, or other flat panels.

1. Protect materials from weather by covering with waterproof sheeting, securely anchored.
2. Provide for air circulation around stacks and under coverings.

1.6 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.

B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged. Wet is defined as having moisture content greater than 15 percent moisture content when measured using a pinless moisture meter designed to measure moisture content in wood,

1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, warp, splits, sagging, or irregular shape.
2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration. It may be possible to remove the fungal growth and then use the wood, provided the wood has a maximum moisture content of 15 percent.
3. Maximum 15 percent moisture content in wood when measured using a pinless moisture meter designed to measure moisture content in wood.

PART 2 - PRODUCTS

2.1 HISTORIC WOOD REPAIR, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.


2.2 EXTERIOR TRIM

A. Vertical Board:

1. Species and Grade: Eastern Hemlock. Old growth salvaged wood clear select grade.
2. Finger Jointing: Not allowed
3. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less. Moisture content to be determined using a pinless moisture meter designed to measure moisture content in wood. Three readings shall be taken per piece with no measurement being closer to the end of the piece than 12 inches. Should any reading on a piece exceed 15 percent that piece shall be set aside for further drying before final fabrication and installation.
4. Provide trim as shown in Drawings.

B. Batten Siding:
1. Species and Grade: Eastern Hemlock old growth salvaged wood clear select grade.
2. Finger Jointing: Not allowed
3. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less. Moisture content to be determined using a pinless moisture meter designed to measure moisture content in wood. Three readings shall be taken per piece with no measurement being closer to the end of the piece than 12 inches. Should any reading on a piece exceed 15 percent that piece shall be set aside for further drying before final fabrication and installation.
4. Provide trim as shown in Drawings.

C. Cornice & Soffit Trim Molding made to Match Existing (including Acorn Drop Pendants):

1. Species and Grade: Eastern Spruce
2. Finger Jointing: Not allowed.
3. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less. Moisture content to be determined using a pinless moisture meter designed to measure moisture content in wood. Three readings shall be taken per piece with no measurement being closer to the end of the piece than 12 inches. Should any reading on a piece exceed 15 percent that piece shall be set aside for further drying before final fabrication and installation.
4. Provide trim as shown in Drawings.

D. Exterior Finish Carpentry Schedule

<table>
<thead>
<tr>
<th>Member</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Boards</td>
<td>Eastern Hemlock (<em>Tsuga canadensis</em>)</td>
</tr>
<tr>
<td>Vertical Battens</td>
<td>Eastern White Pine (<em>Pinus strobus</em>)</td>
</tr>
<tr>
<td>Historic Cornice Trim</td>
<td>Eastern Spruce (<em>Picea spp.</em>)</td>
</tr>
</tbody>
</table>

2.3 PAINT REMOVAL

A. Existing Finishes:
1. Exterior Wood: Paint

B. Paint removal using pH neutral gel products:

1. Multi-strip paint removal pH Neutral gels Manufactured by Sunnyside Corporation, 225 Carpenter Avenue, Wheeling, IL 60090 (800) 323-8611.
2. Smart-Strip Peel Away Paint Removal Gel (must be pH neutral) manufactured by Dumond Chemicals, New York, NY, (609) 655-7700.
4. Or approved equal.

2.4 MISCELLANEOUS MATERIALS
A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into sound wood substrate.
   1. Provide 316 stainless steel fasteners.

B. Flashing: Comply with requirements in Section 073113 “Asphalt Shingles.”

C. Joint Sealants: Comply with requirements in Section 079200 "Joint Sealants," and recommended by sealant and substrate manufacturers for intended application.

D. Wood Glue: Water resistant polyvinyl acetate glue recommended by manufacturer for exterior carpentry use.

2.5 FABRICATION

A. Back out or kerf backs of standing and running trim wider than 5 inches, except members with ends exposed in finished work.

B. Ease edges of lumber less than 1 inch in nominal thickness to 1/16-inch radius and edges of lumber 1 inch or more in nominal thickness to 1/8-inch radius.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged as defined in Section 1.7.B.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Submit scope of wood repair work for each elevation. See 1.3 Sequencing and Scheduling for additional requirements.

3.2 PREPARATION

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

3.3 PAINT REMOVAL

A. Remove all paint using appropriate paint removal gels in accordance with lead paint safe practices. See Specification Section 028313 Lead in Construction.

3.4 WOOD REPAIR/DUTCHMAN

A. Discolored or decayed, warped or split wood: Install new wood dutchman spliced in to match
profile of member being repaired. Cut back existing wood 1" beyond discolored wood. Spliced repair must be tight and flush with the existing profile to prevent moisture penetration and not be visible after painting.

B. Loose joints between members: Secure loose joints by installing a blind wood dowels.

C. If the chosen mechanical paint removal method does not properly prepare surface for painting, sand all surfaces in preparation for repainting. Do not remove adze or rough appearance of wood in sanding process. Wood sanding should be limited. See 3.3 C. above.

D. Prime lumber and moldings to be stained, including both faces and edges.

1. Cut to required lengths. Prime all surfaces not receiving wood glue, including end grain and backs.
2. Comply with requirements in Section 099113 "Exterior Painting."

E. All wood to wood mating surfaces to receive polyvinyl acetate glue recommended by the manufacturer for exterior use.

F. Install restored trim piece plumb, level and true to line, without warp to frame or sash. Provide proper support and anchor securely in place. All attachments to be concealed.

3.5 INSTALLATION, GENERAL

A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.

1. Do not use manufactured units with defective surfaces, sizes, or patterns.

B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials.

1. Use concealed shims where necessary for alignment.
2. Scribe and cut exterior finish carpentry to fit adjoining work.
4. Refinish and seal cuts as recommended by manufacturer.
5. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
6. Coordinate exterior finish carpentry with materials and systems in or adjacent to it.
7. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.6 STANDING AND RUNNING TRIM INSTALLATION

A. Install trim with minimum number of joints as is practical, using full-length pieces from maximum lengths of lumber available.

1. Use scarf joints for end-to-end joints.
2. Stagger end joints in adjacent and related members.
B. Fit exterior joints to exclude water.
   1. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout length of joint.
   2. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.

C. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.7 ADJUSTING

A. Replace exterior finish carpentry that is damaged or does not comply with requirements.
   1. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

B. Adjust joinery for uniform appearance.

3.8 STAINING

A. See Specification 099113 “Exterior Painting.”

3.9 CLEANING

A. Clean exterior finish carpentry on exposed and semi-exposed surfaces. Touch up applied finishes to restore damaged or soiled areas prior to painting. Do not leave any wood surfaces exposed for more than 24 hours in dry weather and never during wet or humid weather.

3.10 PROTECTION

A. Protect installed products from damage from weather and other causes during construction.

B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
   1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

3.11 END OF SECTION 062013
SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Asphalt shingles for minor repairs to match existing asphalt shingle roof.
   2. Underlayment.
   3. Metal flashing and trim.
   4. Ice and water shield underlayment.

B. Related Requirements:
   1. Section 061053 Miscellaneous Rough Carpentry for Plywood Roof Deck Repairs.

1.3 DEFINITION

A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA’s "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 PRODUCT SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.
   1. Asphalt Shingles: Full size with sample of existing asphalt shingle for proof of match.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by a qualified testing agency.

C. Evaluation Reports: For synthetic underlayment from ICC-ES or other testing and inspecting agency acceptable to authorities having jurisdiction, indicating that product is suitable for
intended use under applicable building codes.

1.6 CLOSEOUT SUBMITTALS
   A. Maintenance Data: For asphalt shingles to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS
   A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
      1. Asphalt Shingles: 50 sq. ft.

1.8 QUALITY ASSURANCE
   A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING
   A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.
   B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.
   C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.
   D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.10 FIELD CONDITIONS
   A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.11 WARRANTY
   A. Manufacturer's Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.
      1. Failures include, but are not limited to, the following:
         a. Manufacturing defects.
2. Material Warranty Period: 50 years from date of Substantial Completion, prorated, with first 20 years non-prorated.
3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 60 mph 5 years from date of Substantial Completion.
4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for five years from date of Substantial Completion.
5. Workmanship Warranty Period: 10 years from date of Substantial Completion.

B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt-shingle roofing that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E 108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

2.2 GLASS-FIBER-REINFORCED ASPHALT SHingles

A. Three-Tab-Strip Asphalt Shingles: ASTM D 3462/D 3462M, glass-fiber reinforced, mineral-granule surfaced, and self-sealing; with tabs regularly spaced. PRODUCT MUST MATCH EXISTING ROOF ASPHALT SHINGLES

B. Products Requirements:

1. Strip Size: 12” x 36”; 5” exposure
2. Algae Resistance: Granules resist algae discoloration.
3. Impact Resistance: UL 790 Class A.
4. Color and Blends: Must match existing asphalt shingles. SBS-modified asphalt shingles have improved impact resistance. Asphalt-shingle impact-resistance test criteria are set by UL 2218, which simulates hailstones falling at peak velocity.

C. Manufacturers:
1. GAF Royal Sovereign Three Tab Shingles: Nickel Gray.
2. Owens Corning Supreme Estate Gray 3-tab Metric Asphalt shingle.
3. Or approved equal to match existing asphalt shingles.

2.3 UNDERLAYMENT MATERIALS

1. Use as underlayment.

B. Self-Adhering Underlayment: High-Temperature Sheet: 30 to 40 mils thick minimum, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer. 100% Butyl Based Underlayment.

2. Low Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D 1970.
3. Products:
   a. GCP Applied Technologies: Grace Ultra (a 100% Butyl based underlayment).
   b. Protecto Wrap: Jiffy Seal Ice & Water Guard HT Butyl
   c. Chase Corporation: 4EvaSeal HT Butyl Underlayment
   d. Or approved equal.

2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASTM F 1667; stainless-steel, wire shingle nails, minimum 0.120-inch diameter, sharp-pointed, with a minimum 3/8-inch diameter flat head and of sufficient length to penetrate 3/4 inch into solid wood decking or extend at least 1/8 inch through plywood sheathing.

1. Shank: Smooth.
2. Stainless Steel Type 316

C. Felt-Underlayment Nails: Stainless-steel wire with low-profile capped heads or disc caps, 1-inch minimum diameter.

2.5 METAL FLASHING AND TRIM

A. Product:

1. Sheet Metal: Aluminum.

B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

1. Drip Edges: Fabricate in lengths not exceeding 10 feet with 2-inch (50-mm) roof-deck flange and 1-1/2-inch fascia flange with 3/8-inch drip at lower edge.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with
requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have been made for flashings and penetrations through asphalt shingles.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install lapped in direction that sheds water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days.

1. Prime concrete and masonry surfaces to receive self-adhering sheet underlayment.
2. Eaves: Extend from edges of eaves 24 inches beyond interior face of exterior wall.

3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Eave Drip Edges: Install eave drip-edge flashings below underlayment and fasten to roof sheathing.

3.4 ASPHALT-SHINGLE INSTALLATION

A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Install starter strip along lowest roof edge, consisting of an asphalt-shingle strip [with tabs removed] [at least 7 inches wide] with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 3/4 inch over fascia at eaves.

C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform
exposure.

D. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with offset pattern to march existing at succeeding courses, maintaining uniform exposure.

E. Install asphalt shingles by single-strip column or racking method, maintaining uniform exposure. Install full-length first course followed by cut second course, repeating alternating pattern in succeeding courses.

F. Fasten asphalt-shingle strips with a minimum of [four] [five] [six] <Insert number> roofing nails located according to manufacturer's written instructions.

1. Where roof slope exceeds 21:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
3. When ambient temperature during installation is below [50 deg F (10 deg C)] <Insert temperature>, seal asphalt shingles with asphalt roofing cement spots.

3.5 ROOFING INSTALLER'S WARRANTY

A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:

1. Owner: Division of Property Management & Construction
2. Address: 211 Church Road, Medford, NJ 08055
3. Building Name/Type: 
4. Address: 211 Church Road, Medford, NJ 08055
5. Area of the Work: Roof Eaves
6. Acceptance Date: <Insert date>.
7. Warranty Period: <Insert time>.
8. Expiration Date: <Insert date>.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:

   a. Lightning;
   b. Peak gust wind speed exceeding <Insert wind speed> mph (m/sec);
c. Fire;
d. Failure of roofing system substrate, including cracking, settlement, excessive
deflection, deterioration, and decomposition;
e. Faulty construction of parapet walls, copings, chimneys, skylights, vents,
equipment supports, and other edge conditions and penetrations of the work;
f. Vapor condensation on bottom of roofing; and
g. Activity on roofing by others, including construction contractors, maintenance
personnel, other persons, and animals, whether authorized or unauthorized by
Owner.

2. When the work has been damaged by any of foregoing causes, Warranty shall be null and
void until such damage has been repaired by Roofing Installer and until cost and expense
thereof have been paid by Owner or by another responsible party so designated.

3. Roofing Installer is responsible for damage to the work covered by this Warranty but is
not liable for consequential damages to building or building contents resulting from leaks
or faults or defects of the work.

4. During Warranty Period, if Owner allows alteration of the work by anyone other than
Roofing Installer, including cutting, patching, and maintenance in connection with
penetrations, attachment of other work, and positioning of anything on roof, this
Warranty shall become null and void on date of the alterations, but only to the extent the
alterations affect the work covered by this Warranty. If Owner engages Roofing Installer
to perform the alterations, Warranty shall not become null and void unless Roofing
Installer, before starting the alterations, notified Owner in writing, showing reasonable
cause for claim, that the alterations would likely damage or deteriorate the work, thereby
reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but
was not originally specified for, a use or service more severe than originally specified,
this Warranty shall become null and void on date of the change, but only to the extent the
change affects the work covered by this Warranty.

6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks,
defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to
inspect the work and to examine evidence of such leaks, defects, or deterioration.

7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and
shall not operate to restrict or cut off Owner from other remedies and resources lawfully
available to Owner in cases of roofing failure. Specifically, this Warranty shall not
operate to relieve Roofing Installer of responsibility for performance of the work
according to requirements of the Contract Documents, regardless of whether Contract
was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <Insert day> day of
<Insert month>, <Insert year>.

1. Authorized Signature: <Insert signature>.
2. Name: <Insert name>.
3. Title: <Insert title>.

END OF SECTION 073113
SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Scope of Work Includes:
   1. The sealing of joints indicated on drawings and at junctions between wood trim.
   2. Sealing of joints between wood members.
   3. Sealing of joints between stucco and wood.
   4. No sealant is to be installed unless location is reviewed with Architect prior to installation. This is an historic building and all potential applications of sealant are to be reviewed.
   5. Selected sealant at concealed joints in roof flashing.
   6. All exterior sealant to be paintable.

B. Section Includes:
   1. Non-staining silicone joint sealants.
   2. Butyl joint sealants.
   3. Latex joint sealants.

C. Related Requirements:
   1. Section 062013 Exterior Finish Carpentry.
   2. Section 092400 Stucco Restoration.
   3. Section 099113 Exterior Painting.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
1.4 SUBMITTALS

A. Product Data: Submit for the following:

1. Each joint sealant
2. Joint backing materials.
4. Primers.
5. Cleaners.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each type and color of joint sealant required. Install joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

E. Pre-construction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on pre-construction testing specified in "Quality Assurance" Article.

F. Field Test Report Log: For each elastomeric sealant application. Include information specified in "Field Quality Control" Article.

G. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint; sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

H. Product Test Reports: From a qualified testing agency indicating. Sealants comply with requirements, based on comprehensive testing of current product formulations.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project, with not less than 7 years' documented experience performing similar work with historic buildings, and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

B. Source Limitations: Obtain each type of joint sealant through one source from a single
manufacturer.

C. Pre-construction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use manufacturers standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
   a. Perform tests under environmental conditions replicating those that will exist during installation.
2. Submit not fewer than nine pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint sealant manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
5. Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
6. Contractor will be required to use existing salvaged stucco removed for repairs and existing salvaged wood removed for replacement. Stucco and wood not indicated to be removed cannot be used for testing.

D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in peel, and indentation hardness.
4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

E. Pre-construction Field-Adhesion Testing: Before installing elastomeric sealants, field-test their adhesion to joint substrates as follows:

1. Locate test joints where indicated or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
   a. Each type of elastomeric sealant and joint substrate indicated.
   b. Each type of non-elastomeric sealant and joint substrate indicated.
3. Notify Architect seven days in advance of dates and times when test joints will be
4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.

5. Test Method: Test joint sealants by hand-pull method described below:

a. Install joint sealants in 60-inch-long joints using same materials and methods for joint preparation and joint-sealant installation required for the completed Work. Allow sealants to cure fully before testing.

b. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.

c. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1-inch mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler alongside of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

d. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.

6. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

7. Evaluation of Pre-construction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

D. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:

1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.

2. Disintegration of joint substrates from natural causes exceeding design specifications.

3. Mechanical damage caused by individuals, tools, or other outside agents.

4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated.
2.2 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: Contractor to provide color samples for selection.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

B. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

C. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Low-Modulus Nonacid-Curing Silicone Sealant

1. Products: Provide one of the following:
   a. 795; Dow Corning
   b. Silicone II, GE
   c. 890 FTS-TXTR; Pecora Corporation
   d. 890 FTS; Pecora Corporation
   e. Or approved equal.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 100
4. Additional Movement Capability: 100 percent movement in extension and 50 percent movement in compression for a total of 150 percent movement.
5. Use Related to Exposure: NT (non-traffic).
6. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, 0.
7. Stain-Test-Response Characteristics: Non-staining to porous substrates per ASTM C 1248.

2.4 SOLVENT-RELEASE JOINT SEALANTS

A. Butyl Sealant: Non-curing, nondrying, nonhardening, nonskinning, non-staining, gunnable, synthetic rubber sealant.
1. **Products:** Provide one of the following:
   b. "Tremco Acoustical Sealant"; Tremco, Inc.
   c. Bostik 300; Bostik Inc.

B. **Butyl Polyisobutylene Sealant:** Non-curing, nondrying, solvent-release; complying with 809.2, as described in AAMA 800.

C. **Butyl-Rubber-Based Solvent-Release Joint-Sealant:**
   1. **Products:** Provide one of the following:
      a. Bostik 300; Bostik Inc.
      b. BC-158; Pecora Corporation.
      c. Tremco Butyl Sealant; Tremco.
   2. Comply with ASTM C 1085.

2.5 **LATEX JOINT SEALANTS**

A. **Latex Sealant:**
   1. **Products:** Provide one of the following:
      a. Chem-Calk 600; Bostik Inc.
      b. AC-20 + Silicone; Pecora Corporation.
      c. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
      d. Tremflex 834; Tremco.
      e. Or approved equal.
   2. Comply with ASTM C 834.

2.6 **JOINT-SEALANT BACKING**

A. **General:** Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. **Cylindrical Sealant Backings:** ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Open-cell polyurethane or reticulated polyethylene rod.

C. **Bond-Breaker Tape:** Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
2.7 MISCELLANEOUS MATERIALS

A. General: Select and provide materials that are non-harming and non-staining to existing historic materials; are compatible with joint substrates and sealant materials; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

C. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants to joint substrates.

D. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, harm surrounding historic materials or project site, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
a. Metal

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, dry tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise
3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field-test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

   a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
   b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants by hand-pull method described below:

   a. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.
   b. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1-inch mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler alongside of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
   c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.

4. Inspect tested joints and report on the following:

   a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
   b. Whether sealants filled joint cavities and are free from voids.
   c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field adhesion test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used to originally seal joints. Ensure that original sealant surfaces are clean and new sealant contacts original sealant.

B. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure from testing or non-compliance with other indicated requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur. Protect surrounding materials and project site.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. General:

1. All joint sealant materials and locations shall be approved by the Architect prior to commencement of work.
2. Joints of a nature similar to that of joints indicated on the schedule shall be sealed with same sealer, whether indicated on drawings to be sealed or not.
3. Products provided are basis of design only.

B. Exterior Building Joints between Stucco and Wood:

1. Sealant: Silicone sealant.
2. Backer: Open-cell backer rod.
4. Color: Custom to be selected by Architect.

C. Concealed Metal Flashing Joints:

1. Acceptable sealants:
   a. Butyl sealant.
   b. Butyl polyisobutylene sealant.
c. Butyl-rubber-based solvent-release joint sealant.
a. Color: To be selected by Architect.

D. Painting Joint Sealant Typically Between Wood:

a. Latex Sealant

END OF SECTION 079200
SECTION 092400 - STUCCO RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

A. Scope of work includes:
   1. Careful removal of contemporary stucco which must be remediated due to hazardous material content.
   2. Careful removal of existing historic stucco behind the contemporary stucco.
   3. Replication and Installation of the historic stucco for the exterior field stone foundation walls.
   4. Rake out and install stucco at brick basement windowsills.

B. Related sections:
   1. Section 013591 - Historic Treatment Procedures
   2. Section 028213 - Lead In Construction
   3. Section 040343 - Historic Masonry Restoration
   4. Section 062013 - Exterior Finish Carpentry
   5. Section 079200 - Joint Sealants

1.2 SUBMITTALS

A. General: Submit manufacturer's product data and installation instructions for systems specified, demonstrating compliance with requirements.

B. Material certificates: Submit producer's certification that each kind of building material complies with specified requirements.

C. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work. Show locations to be repaired.

D. Material Testing: Contractor is responsible for submitting the material test reports from the material conservator.

E. Samples:
   1. Submit at least six 12” square samples of the exterior stucco type replicating the existing finish textures, mounted on plywood or hardwood panels.
   2. Mockup: Prepare at least two field samples in locations selected by the architect/conservator. To establish the acceptable limits and variations in material and workmanship for each type of stucco condition. Do not commence work without architect/conservator’s acceptance of the mockup. Minimum sizes 4’ x 4’. Mockup should demonstrate all types of repair specified showing sequencing of application.
   3. Samples for verification: A bagged and labeled sample of each component. Identify sources,
1.3 QUALITY ASSURANCE

A. Installer must be familiar with NPS Preservation Brief 22 Repair of Historic Stucco.

B. Quality Control Program: Prepare a written quality control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising worker performance and preventing damage.

C. Following the installation of new stucco, the contractor must warranty for 1 year after completion of the work that all cracks that appear will be repaired at no cost to owner.

D. No air-entrained or premixed products will be permitted for use on this site.

1.4 PROJECT CONDITIONS

A. Environmental requirements: Comply with provisions of ASTM 926 and recommendations of cement stucco manufacturer for environmental conditions before, during and after application of stucco.

B. Protect sills, ledges surrounding woodwork, projects, and all surfaces from mortar droppings.

C. Use all means necessary to protect the materials of this section before, during and after installation and to protect the work and material of other trades, the building, and the public.

D. Cold weather requirements:
   1. When ambient outdoor temperatures are below 55°F maintain continuous, uniform temperature of no less than 55°F for not less than one week prior to beginning stucco installation, and for no less than one week after completion of stuccoing.
   2. Avoid heat sources in immediate vicinity of stucco, and conditions under which uneven heating could occur.

E. Warm weather requirements:
   1. Protect stucco against uneven and excessive evaporation of moisture and from strong flows of dry air, both natural and artificial.
   2. Apply and cure stucco as required by climatic and job conditions to prevent drying out during curing period.

   Prevent premature drying of stucco using any of the following:
   1. Moist curing.
   2. Barriers to deflect sunlight and wind.
   3. Proprietary curing compounds.

1.5 DELIVERY, STORAGE AND HANDLING

A. Product Handling: Deliver all products to job in original container with seals unbroken and use without reducing.
B. Materials Storage: Protect all products from freezing and store above ground.

C. Store all materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

PART 2 - PRODUCTS

2.1 STUCCO

A. Stucco repairs:
   1. Repair and restoration: The system will be a two-coat stucco system and includes a scratch coat keyed into the field stone mortar joints and a finish coat. The scratch coat is approximately 5/8”. The finish coat is approximately 1/4”.

B. Patching repairs are not permitted all stucco must be removed and replaced.

2.2 STUCCO MATERIALS

A. Use the same materials as the mortar repointing mix as described in Section 040343 - Historic Masonry Restoration See Section 2.3-2.5

2.3 MORTAR MIXING

A. Mix Ratio:

B. General: Do not use add-mixtures of any kind in stucco, unless otherwise indicated.

C. Measure all materials in dry condition by volume.

D. Thoroughly mix dry material prior to adding water.

STUCCO ATTACHMENT METHOD

A. Existing field stone will be raked out and pointed leaving sufficient depth for the stucco to be keyed into the stone mortar joints.

2.5 STUCCO FINISH

A. Finish stucco texture to match existing historic stucco.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine all existing field conditions prior to commencing the work.

B. Schedule remediation work to remove contemporary stucco in accordance with hazardous remediation guidelines.

3.2 SURFACE PREPARATION

A. Cut back and remove all stucco

B. After raking out and repointing field stone wall provide sufficient key for new stucco.

C. Pre-wet surface before application of new stucco.

3.3 STUCCO APPLICATION

A. Apply stucco to match existing thickness as shown on the drawings and as recommended by conservator to be field verified by the Contractor.

Note: Additional coats may be required to allow for alignment with existing stucco. Use light water spray to prevent stucco drying out between stucco application coats.

B. Apply each coat to the next prior to setting of previous coat. At the end of the workday seal completed work to prevent drying out. Float from right to left and finish from left to right.

C. Apply and work finish coat to match approved mock up and existing stucco finish.

1. Coordinate stucco application with installation of adjacent work to avoid soiling and damage of stucco and other work.

2. Comply with ASTM C926 for two coat – cement plaster on solid base.

D. Tolerances: Deviation from the plain not to exceed 1/8” in 10’-0” as measured with a straight edge at any location on the surface.

E. Cure stucco by maintaining in a damp condition for not less the 72 hours.

F. Install movement joints in accordance with drawings.

G. Curing:

1. When ambient relative humidity will be below 75 percent during non-work hours, moist cure the set and hardened base coat plaster at the end of the workday by spraying a fine mist of water over the entire surface. Repeat application of a fine mist of water morning and evening until plaster has been in place 24-48 hours. Alternatively, coverage of the base coat plaster with plastic membrane unit application of subsequent coat or finish coat plaster is permitted.

2. When ambient relative humidity will be above 75 percent during non-work hours, neither water spraying nor coverage with plastic membrane is required.
3.4 FINAL CLEANING

A. After stucco has fully hardened, thoroughly clean exposed surfaces using a damp rag, in preparation for finish. Damp rag with water only.

B. Do not use metal scrapers or alkali cleaning agents.

C. Dispose of all debris resulting from cleaning and stucco operations.

END OF SECTION 092400
SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on existing exterior surfaces including:
   1. Staining of all exterior wood to include primer and opaque stain application.

B. Related Requirements:
   1. Section 062013 - Exterior Finish Carpentry.

C. Paint or stain exposed surfaces, as noted.

D. All wood surfaces to have all paint removed prior to repainting. See 062013 Exterior Finish Carpentry for specified paint removal products in accordance with Safe Lead Paint Abatement practices.

E. All paint must cure for at least ten days before exposed to inclement weather.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
   1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
   2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
   3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
   4. Semi-gloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
   5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

1.4 SUBMITTALS

A. Product Data: For each paint system and paint removal system specified. Include block fillers and primers for paints and blast aggregate and equipment specifications for paint removal systems.
   1. Material List: Provide an inclusive list of required coating materials. Indicate each
material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.

2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use and for paint removal system equipment and aggregate.

3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

B. Samples for Initial Selection: Manufacturer's color charts showing the selected colors of finish coat material indicated.

C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.

   1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.

   2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

   3. Submit Samples on the following substrates for the Architect's review of color and texture only:

      a. Painted Wood: Provide two 12-inch square samples of each color and material on hardboard, 1 coat primer, 2 coats finish coat application.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color, numbers, and designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra material from the same product run that match products installed and that are in unopened factory-sealed containers for storage and identified with labels describing contents.

   1. Paint: 5 percent, but not less than 2 gal of each material and color applied.

1.6 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

C. Paint Removal Sample and Surface Preparation Sample: Contractor to provide at least four paint removal samples and wood surface preparation samples for review by architect prior to commencing any work. The location and size of samples are to be selected by the Architect.

D. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects
and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
   a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
   b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.
   a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
   b. Final approval of colors will be from job-applied samples.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
   1. Product name or title of material.
   2. Product description (generic classification or binder type).
   3. Manufacturer's stock number and date of manufacture.
   4. Contents by volume, for pigment and vehicle constituents.
   5. Thinning instructions.
   6. Application instructions.
   7. Color name and number.
   8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg. F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
   1. Protect from freezing. Keep storage area neat and orderly. Remove soiled rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

   2. Comply with all municipal safety storage requirements.

1.8 FIELD CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F.
B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F.

C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
   1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to products listed in the Exterior Painting Schedule for the paint category indicated.

B. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.

C. Manufacturers Name: To be selected by Architect.

2.2 PAINT REMOVAL PRODUCTS

A. Paint removal using pH neutral gel products:
   1. Multi-strip paint removal pH Neutral gels Manufactured by Sunnyside Corporation, 225 Carpenter Avenue, Wheeling, IL 60090 (800) 323-8611.
   2. Smart-Strip Peel Away Paint Removal Gel (must be pH neutral) manufactured by Dumond Chemicals, New York, NY, (609) 655-7700.
   4. Or approved equal.

B. Water: Potable

C. Plastic scrapers

D. Fungicide

E. Natural bristle brushes

2.3 PAINT, GENERAL
A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:
   1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
   3. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
      a. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. Color: To be selected by Architect.

D. Finish/Sheen: Finish to be selected by Architect.

2.4 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
   1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
   2. Testing agency will perform tests for compliance with product requirements.
   3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter
as follows:
1. Wood: 15 percent.

C. Stucco Substrates: Verify that plaster is fully cured.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.
   1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Existing Finish Removal:
   1. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   2. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Wood Substrates:
   1. Sand surfaces that will be exposed to view and dust off.
   2. Prime edges, ends, faces, undersides, and backsides of wood.
   3. Where dutchman repair or replacement occurs, prime all sides of wood not receiving wood glue in shop before delivery to site. Photo-document for the Architect.

E. Protect all exposed wood from moisture by priming immediately.

F. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
   (a) Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
   (b) Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
   (c) Use only thinners approved by paint manufacturer and only within recommended limits.
   (d) Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.
3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
   3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
   4. Paint entire exposed surface of window frames and sashes.
   5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
   (a) The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
   (b) Omit primer on metal surfaces that have been shop primed and touchup painted.
   (c) If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
   (d) Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

F. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
   (a) Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
(b) Rollers: Not permitted without consultation with Architect.
(c) Spray Equipment: Not permitted on site.
(d) Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
(e) Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
(f) Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
(g) Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

A. The owner reserves the right to invoke the following test procedure at any time and as often as the owner deems necessary during the period when paint is being applied.

B. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

C. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove non-complying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coatings are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Exterior Wood Trim
   1. Prime Coat: Exterior, alkyd wood primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      a. Moore: Primer 094
      b. Coronado: Alkyd Deck & Siding Primer (B800)
      c. Pratt & Lambert: Pro Hide Ext Alkyd Primer (V5846)
      d. Tint primer for all dark colors, per manufacturer.
   2. First and Second Coat: Ultra-Flat Waterborne Solid Stain (610) applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils per coat.
      a. Moore: Benjamin Moore Arbor Coat, Color #2100-10 Mocha Madness (basis for design)
      b. Coronado: Maxum Solid Color Siding Stain Flat (2000 series)
      c. Pratt & Lambert: Stair Shield 100% Acrylic Solid Flat (21490) F1490 Series.

B. Color to be selected by architect for all exterior woodwork to be painted.

LEAD SAFE PRACTICES

To be read in accordance with Specification Section 028313 Lead In Construction

I. Lead Safe Practices are safe ways of working with leaded paint. Lead safe practices are used as part of activities when paint will be disturbed as part of the work.

II. Lead Safe Practices have the following goals:

   1. To minimize dust during construction activity.
   2. To clean the work areas using lead specific cleaning methods.
   3. To keep the painted surfaces of the construction area intact. Intact leaded paint is not a lead hazard.

III. This section is intended to provide the minimum requirements for lead-safe work practices.

IV. Prohibited activities. When disturbing paint in the construction area do not:

   1. Dry scrape painted surfaces.
   2. Dry sand painted surfaces.
   3. Use a high temperature heat gun or open flame to remove paint.
   4. Use a grinder to remove paint.
   5. Use painters’ masks, as they do not protect one from lead dust.
   6. Power-wash the construction area as this can spread lead paint chips into the surrounding ground area.
DR. JAMES STILL OFFICE STABILIZATION  
211 CHURCH ROAD  
MEDFORD, NEW JERSEY  
DPMC NO. P1200-00

May 13th 2020  
Permit Set

7. Open flame burning.
8. Power sanding without HEPA dust collection.

V. Lead safe practices require the following:

1. Wet scraping of paint (use a spray bottle with water to pre-wet the surface).
2. Wet sand the surface (use a spray bottle with water to pre-wet the surface).
3. Use plastic sheeting to seal off area outside the construction area.
4. Use plastic sheeting to seal furnace vents.
5. Use a standard garden hose to wet down large areas before scraping/sanding.
6. Use drop cloths to catch paint chips and throw the paint chips in the trash.
7. Do not let children or pregnant women in the work areas until cleaned.
8. Use a HEPA filtered vacuum to clean the work area. Due to the requirement to work in wet areas, all electric circuits must be protected by GFCI with integral test buttons.
9. Maintain all paint not to be disturbed in an intact condition.
10. Instruct all workers in these lead safe practices.
11. Limited access to minimize the spread of lead dust by only allowing trained workers and supervisors to enter a work area until it has undergone specialized lead dust cleaning.
12. Use HEPA filtered sanding/grinding equipment.
13. Wash work clothes separately from the other clothing.

VI. Exterior work area protection. Secure a 6 mil. polyethylene sheet to the horizontal ground plane (flooring or grade) 6 ft. minimum out from the work area. At the end of a task mist, remove and dispose of plastic.

VII. Worker protection. To minimize the potential for worker exposure to lead dust, the following activities are never permitted in any work area:

1. No eating.
2. No drinking.
3. No chewing gum or tobacco.
4. No smoking.
5. No applying cosmetics.

VIII. Conclusion of activity. After completion of lead activities, and removal of containment, the following cleaning procedures must be followed:

1. Reposition all exterior furnishings. HEPA vacuum all visible surfaces including clothing, furniture, walls, floors, windowsills, window troughs, etc. Wet wipe all surfaces with detergent and rinse. After surface is dry, HEPA vacuum all visible surfaces.
Lead is a naturally occurring, heavy, gray metal. When absorbed into the body, lead can have highly toxic effects. Lead exposure affects all the systems in the body. A small amount of lead exposure does more damage to children than adults. Lead can damage a child under 6 years old physically, behaviorally, and mentally. Once a child has been exposed to lead, the effects of exposure cannot be reversed.

Physical damage caused by lead exposure includes, but is not limited to, central nervous system problems, headaches, stomachaches, joint pains, and sleep disorders. Behavioral damage caused by lead exposure includes, but is not limited to, short attention span, irritability, aggressive and violent behavior, and hyperactivity. Mental damage caused by lead exposure includes, but is not limited to, lowered IQ points, lowered reading scores in school, and learning disabilities.

The only way to know if a child has been lead poisoned is to have a blood test performed by your physician. Once a child has been poisoned the damage cannot be reversed, but you can stop further damage from happening.

Lead has been used extensively in the United States for several centuries. As a result, lead can be found in paint, soil, water, air and food. The most common way children are exposed to lead is through lead dust. The leaded dust comes from lead-based paint. Lead-based paint becomes a hazard and causes lead dust when the paint is in poor condition, is painted on friction or impact surfaces, and or is disturbed during a renovation.

Lead-based paint chips and dust then mix with household dust and build up in window troughs, on floors, and flat surfaces. Children are put at risk when lead in paint chips and dust gets on their hands and toys, which they may put in their mouths. If paint is kept intact and surfaces are kept clean, children can live safely in a home painted with lead-based paint. Homes built before 1940 have a 98% chance of containing lead-based paint. Homes built before 1960 have a 70% chance of containing lead-based paint. Homes built before 1978 have a 20% chance of containing lead-based paint. Homes built after 1978 are unlikely to contain lead-based paint. Homes built before 1950 also used paint that had higher concentrations of lead. Paint kept in good condition that remains undisturbed is not a hazard.

Lead-based paint is usually not a hazard if it is in good condition. Children are most commonly exposed to lead poisoning through lead in household dust caused by lead-based paint in the following situations:

a. In poorly maintained, older houses, lead-based paint, which may be several layers down, flakes and peels off and creates lead dust. Paint failure is usually caused by moisture problems.

b. On friction or impact surfaces. For example, windows painted with lead-based paint rub (friction) together when the window is opened and closed, releasing lead dust. When a door painted with lead-based paint closes (impact) on a doorknob, the impact damages the paint and releases lead dust.

c. On chewable surfaces, such as, windows and windowsills, doors and door frames, stair railings, banisters, and porches. The lead in the paint gets directly into a child’s mouth.

Uncontrolled or uncontained dust and debris from repainting and/or renovation that disturbs lead-based paint in a well-maintained home can also expose children to unsafe lead levels.

Lead-based paint chips and dust then mix with household dust and build up in window troughs, on floors, and flat surfaces. Children are endangered when lead in paint chips and dust gets on their hands and toys, which they may put in their mouths. If paint is kept intact and surfaces are kept clean, children can live safely in a home painted with lead-based paint.
The second most common way that children are exposed to lead is through soil. Soil around the buildings may have old lead-based paint chips from the exterior paint or lead from previous leaded gasoline deposits. Sanding and power washing can cause fine particles of lead-based paint to deposit in the soil. Children then play in the dirt and are at risk of ingesting lead or tracking lead into their homes on their shoes. Exposure can be decreased by covering bare soil with grass, sod, wood chips, concrete, or asphalt, or by making bare soil inaccessible to children.

Additional sources of lead exposure to children include water, parents whose jobs or hobbies expose them to lead, leaded crystal, lead soldered cans, lead glazed ceramics, and some home remedies or foreign cosmetics.

END OF SECTION 099113
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavating and backfilling for new footings
   2. Minor regrading.

B. Related Section 329200 Seeding and Section 329113 Landscape Grading

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.
   1. Initial Backfill: Backfill in areas where excavation for new foundations shown on structural drawings.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

D. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.
1.3 QUALITY ASSURANCE

A. On Site Conference: Conduct conference on site prior to excavation. Mark out proposed excavate locations. Owner, archeologist, contractor and architect to attend on site conference.

B. Archeological monitoring to be coordinated by constructor.

1.4 PROJECT CONDITIONS

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

B. Do not commence earth moving operations until archeological survey assessment has been agreed and coordinated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification in accordance with Geotechnical Analysis and recommendations.

C. Unsatisfactory Soils: Soil Classification Not recommended in geotechnical report.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
H. Drainage Course: Narrowly graded mixture of [washed] crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored to comply with local practice or requirements of authorities having jurisdiction.

2.3 ENGINEERING SERVICES

A. Contractor to provide all necessary engineering services by a licensed engineer in New Jersey. Refer to Structural Engineer Drawings and Geotechnical Soil and Foundation report.

B. Professional services for geotechnical work should include the following:
   1. Drilling at least one boring adjacent to the church with a truck mounted drill rig to a 40 ft. depth or 5 ft. into bedrock, whichever is encountered first.
   2. Soil samples should be obtained at 5 ft. depth intervals by the Standard Penetration Test method (ASTM D 1586).
   3. Rock (if encountered) should be cored using double tube diamond tipped core barrel.
   4. An observation well should be installed in the completed boring to observe groundwater elevations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.
3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

3.4 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building underpinning with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.5 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.
3.6 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.7 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section Cast-in-Place Concrete.

D. Place and compact initial backfill of with satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.8 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

3.9 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTATION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698 and ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.11 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade back to existing to cross sections, lines, and elevations. Review any grading changes with architect.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.12 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Shape subbase course and base course to required crown elevations and cross-slope grades.
2. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698 and ASTM D 1557.

3.13 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.14 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
SECTION 314100 - SHORING AND BRACING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extent of shoring and bracing work includes, but is not limited to, the following:

1. Shoring and bracing as necessary to preserve and maintain the existing historic structure during construction.
3. Removal of shoring and bracing, as required.

1.2 SUBMITTALS

A. Layout Drawings: Provide layout drawings for shoring and bracing system deemed necessary for coordination and review by structural engineer.

1.3 QUALITY ASSURANCE

A. Regulations: Comply with the most recent Building Code of the State of New Jersey and ordinances of governing authorities having jurisdiction.

B. Special inspection for structural stability shall be provided by a NJ State licensed Engineer approved by and paid for by the Owner.

1.4 JOB CONDITIONS

A. Before starting work, check and verify governing dimensions and elevations. Survey condition of adjoining properties. Take photographs to record any prior settlement or cracking of structures, pavements, and other improvements. Prepare a list of such damages, verified by dated photographs, and signed by Contractor.

B. Survey adjacent structures and improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations. Locate datum level used to establish benchmark elevations sufficiently distant so as not to be affected by movement resulting from excavation operations.

C. During excavation, resurvey benchmarks weekly, employing a licensed Land Surveyor or registered Professional Engineer, licensed in the State of New Jersey.

1.5 EXISTING UTILITIES

A. Protect existing active sewer, water, gas, electricity and other utility services and structures.

B. Notify municipal agencies and service utility companies having jurisdiction. Comply with requirements of the local building department and governing agencies for protection, relocation,
removal and discontinuing of services, as affected by this work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide suitable shoring and bracing materials, which will support loads imposed.

PART 3 - EXECUTION

3.1 SHORING

A. Wherever shoring is necessary, locate the system to clear permanent construction and to avoid any point loads on roof structures.

3.2 BRACING

A. Locate bracing to clear columns, floor or roof framing construction, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace.

B. Install internal bracing, if required, to prevent spreading or distortion to braced frames.

C. Maintain bracing until structural elements are rebraced by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

D. Remove sheeting, shoring and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.

E. Repair or replace, as acceptable to Owner, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION 314100
SECTION 316613 - HELICAL PILES AND HELICAL ANCHORS

PART 1 GENERAL

1.1 DESCRIPTION

This work pertains to furnishing and installing Helical Piles, Helical Anchors, and Bracket Assemblies shown in the Contract in accordance with the Drawings and this specification. Each Helical Pile and Helical Anchor shall be installed at the location and to the elevation, minimum length, installation torque, and allowable capacities shown on the Plans or as established.

1.2 DEFINITIONS

A. Helical Pile: Manufactured steel foundation with one or more helical bearing plates that is rotated into the ground to support structures.

B. Helical Anchor: Same as a Helical Pile. Term generally used when axial tension is the primary service load.

C. Engineer: Individual or firm retained by Owner or General Contractor to verify Helical Pile and Helical Anchor quality assurance with the Contract, the Drawings, and this specification.

D. Allowable Bearing Capacity: Ultimate bearing capacity of the bearing stratum divided by a factor of safety.

E. Lead Section: The first section of a Helical Pile or Helical Anchor to enter the ground. Lead Sections consist of a central shaft with a tapered end and one or more helical bearing plates affixed to the shaft.

F. Extension Section: Helical Pile or Helical Anchor sections that follow the Lead Section into the ground and extend the Helical Lead to the appropriate depth. Extension Sections consist of a central shaft and may have helical bearing plates affixed to the shaft.

G. Brackets: Cap plate, angle, thread bar, or other termination device that is bolted or welded to the end of a Helical Pile or Helical Anchor after completion of installation to facilitate attachment to structures or embedment in cast-in-place concrete.

H. Augering: Rotation of the shaft with little or no advancement. It can occur when the helical bearing plates pass from a relatively soft material into a comparatively hard material. Augering can also result from insufficient crowd or downward pressure during installation. In some cases, augering may be (temporarily) necessary in order to grind through an obstruction.

I. Pile Design Professional: Individual or firm responsible for the design of Helical Piles, Helical Anchors, and Brackets.
1.3 QUALIFICATIONS

A. Due to the special requirements for manufacture and quality control of Helical Piles, Helical Anchors, and Brackets, all Helical Piles, Helical Anchors, and Brackets shall be obtained from a company specializing in the manufacturing and distribution of these products.

1.4 SUBMITTALS

A. Contractor shall prepare and submit to the Engineer for review and approval, Shop Drawings and specifications for the Helical Piles and Helical Anchors intended for use on the project at least 14 calendar days prior to planned start of installation. The Shop Drawings shall include the following:

1. Helical Pile and Helical Anchor product identification number(s) and designation(s)
2. Maximum allowable mechanical compression and tensile strength of the Helical Piles and Helical Anchors
3. Number of Helical Piles and Helical Anchors and respective design allowable capacities from the Drawings
4. Planned installation depth and the number of lead and extension sections
5. Preliminary helical configuration (number and diameter of helical bearing plates)
6. Manufacturer’s recommended capacity to installation torque ratio
7. Minimum final installation torque(s)
8. Product identification numbers and designations for all Bracket Assemblies and number and size of connection bolts or concrete reinforcing steel detail
9. Corrosion protection coating on Helical Piles, Helical Anchors, and Bracket Assemblies

B. Contractor’s Pile Design Professional shall submit to the Engineer design calculations for the Helical Piles, Helical Anchors, and Brackets intended for use on the project at least 14 calendar days prior to planned start of installation. The Shop Drawings shall include the following:

1. Reduction in shaft dimension and strength by the sacrificial thickness anticipated based on corrosion loss over the design life for project soil conditions.
2. Considerations for downdrag, buckling, and expansive soils (as appropriate).
3. Minimum installation depth to reach bearing stratum and to achieve pullout capacity (if required).
4. Soil bearing and pullout capacity.
5. Lateral resistance of the shaft (if required).
6. Estimated pile head movement at design loads.

C. Contractor shall submit to the Engineer calibration information certified by an independent testing agency for the torque measurement device and all load testing and monitoring equipment to be used on the project. Calibration information shall have been tested within the last year of the date submitted. Calibration information shall include, but is not limited to, the name of the testing agency, identification number or serial number of device calibrated, and the date of calibration.
D. Work shall not begin until all the submittals have been received and approved by the Engineer. The Contractor shall allow the Engineer a reasonable number of days to review, comment, and return the submittal package after a complete set has been received. All costs associated with incomplete or unacceptable submittals shall be the responsibility of the Contractor.

1.5 SHIPPING, STORAGE, AND HANDLING

A. All Helical Pile, Helical Anchor, and Bracket Assemblies shall be free of structural defects and protected from damage. Store Helical Piles, Helical Anchors, and Bracket Assemblies on wood pallets or supports to keep from contacting the ground. Damage to materials shall be cause for rejection.

PART 2 - PRODUCTS

2.1 HELICAL PILES, HELICAL ANCHORS, AND BRACKETS

A. Unless noted otherwise, it is the Contractor’s Pile Design Professional’s responsibility to select the appropriate size and type of Helical Piles, Helical Anchors, and Brackets to support the design loads shown on the Drawings. These specifications and the Drawings provide minimum requirements to aid the Contractor in making appropriate materials selections. The size and number of helical bearing plates must be such that the Helical Piles and Helical Anchors achieve the appropriate torque and capacity in the soils at the site within the minimum and maximum length requirements. Failure to achieve proper torque and capacity shall result in Contractor replacing Helical Piles and Helical Anchors as appropriate to support the required loads. All material replacements shall be acceptable to Engineer.

B. The design strength of the helical bearing plates, shaft connections, Brackets, and the pile shaft itself shall be sufficient to support the design loads specified on the Drawings times appropriate service load factors.

C. Helical Piles and Helical Anchors shall be fitted with a manufactured Bracket that facilitates connection to the structure. Brackets shall be rated for the design loads shown on the Drawings. Brackets shall be affixed to the end of Helical Piles and Helical Anchors via bolts, plug welds, or continuous penetration welds meeting the requirements for shaft connections given previously in these specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Contractor shall take reasonable effort to locate all utilities and structures above and underground in the area of the Work. Contractor shall pot hole to determine the exact location of underground utilities and buried structures within a distance from a Helical Pile or Helical Anchor equal to three times the maximum helix diameter. Contractor is responsible for protection of utilities and structures shown on the Drawings. Costs of avoiding, relocating, or repair of utilities not shown on Drawings shall be paid by Owner as extra work.
B. Contractor shall review Drawings and soil borings in the Contract Documents to determine subsurface conditions for sizing and installation of Helical Piles and Helical Anchors. In addition, Contractor shall make a site visit to observe conditions prior to the start of Work.

C. Contractor shall notify Engineer of any condition that would affect proper installation of Helical Piles and Helical Anchors immediately after the condition is revealed. Contractor shall halt installation work until the matter can be resolved upon mutual satisfaction of Contractor, Owner, and Engineer. Costs associated with construction delays, product substitutions, pile or anchor relocations, or other related costs shall be the responsibility of the Owner if the result of an unforeseen condition that could not be inferred by a reasonable Contractor from the Drawings and Construction Documents.

D. If the number and size of helical bearing plates required for the project is not shown on the working drawings, the contractor shall have the option of performing subsurface tests using methods subject to the review and acceptance of the Owner. The data collected along with other information pertinent to the project site shall be used to determine the required helical bearing plate configuration.

E. If excavation is required for proper installation of Helical Piles and Helical Anchors, Contractor shall make safe excavations in accordance with OSHA standards. All excavations greater than 20 feet in depth or not in strict accordance with OSHA standard details shall be designed by a registered design professional specializing in the design of excavations and shoring. The costs of all excavations, shoring, and related design shall be born by the Contractor unless noted otherwise in the Contract.

3.2 INSTALLATION EQUIPMENT

A. Torque Motor: Helical Piles and Helical Anchors should be installed with high torque, low RPM torque motors, which allow the helical plates to advance with minimal soil disturbance. The torque motor shall be hydraulic power driven with clockwise and counter-clockwise rotation capability. The torque motor shall be adjustable with respect to revolutions per minute during installation. Percussion drilling equipment shall not be permitted. The torque motor shall have torque capacity equal to or greater than the minimum final installation torque required for the project.

B. Installation Equipment: The installation equipment shall be capable of applying adequate crowd and torque simultaneously to ensure normal advancement of the Helical Piles and Helical Anchors. The equipment shall be capable of maintaining proper alignment and position.

C. Torque Indicator: A torque indicator shall be used to measure installation torque during installation. The torque indicator can be an integral part of the installation equipment or externally mounted in-line with the installation tooling. The torque indicator shall be capable of torque measurements with a sensitivity of 500 ft-lb or less. Torque indicators shall be re-calibrated if, in the opinion of the Engineer, reasonable doubt exists as to the accuracy of the torque measurements.
3.3 INSTALLATION PROCEDURES

A. Unless shown on the Drawings, the number and size of helical blades shall be determined by the Contractor’s Pile Design Professional in order to achieve the required torque and tensile/bearing capacity for the soil conditions at the site. The ratio of design load to the total area of the helical bearing plates shall not exceed the Allowable Bearing Capacity.

B. Constant axial force (crowd) shall be applied while rotating Helical Piles and Helical Anchors into the ground.

C. The manufacturer’s torsional strength rating of the Helical Pile or Helical Anchor shall not be exceeded during installation.

D. Bolt hole elongation due to torsion of the shaft of a Helical Anchor at the drive tool shall be limited to ¼ inch. Helical Anchors with bolt hole damage exceeding this criterion shall be uninstalled, removed, and discarded.

E. When the Termination Criteria of a Helical Pile or Helical Anchor is obtained, the Contractor shall adjust the elevation of the top end of the shaft to the elevation shown on the Drawings or as required. This adjustment may consist of cutting off the top of the shaft and drilling new holes to facilitate installation of Brackets to the orientation shown on the Drawings. Alternatively, installation may continue until the final elevation and orientation of the pre-drilled bolt holes are in alignment. Contractor shall not reverse the direction of torque and back-out the Helical Pile or Helical Anchor to obtain the final elevation.

F. The Contractor shall install Brackets in accordance with Helical Pile manufacturer’s details or as shown on the Drawings.

G. All Helical Pile and Helical Anchor components including the shaft and Bracket shall be isolated from making a direct electrical contact with any concrete reinforcing bars or other non-galvanized metal objects since these contacts may alter corrosion rates.

3.4 TERMINATION CRITERIA

A. Helical Piles and Helical Anchors shall be advanced until all of the following criteria are satisfied.

1. Axial capacity is verified by achieving the final installation torque as shown on the Drawings or as provided by the Pile Design Professional.

2. Minimum depth is obtained. The minimum depth shall be as shown on the Drawings, that which corresponds to the planned bearing stratum, or the depth at which the final installation torque is measured, whichever is greater. In addition, Helical Anchors shall be advanced until the average torque over the last three (3) feet equals or exceeds the required final installation torque.

B. If the torsional strength rating of the Helical Pile or Helical Anchor and/or the maximum torque of the installation equipment has been reached or Augering occurs prior to achieving the minimum depth required, the Contractor shall have the following options:
1. Terminate the installation at the depth obtained subject to the review and acceptance of the Engineer and Owner.

2. Remove the Helical Pile or Helical Anchor and install a new one with fewer and/or smaller diameter helical bearing plates or with dual cutting edge helical bearing plates. The new helical configuration shall be subject to review and acceptance of the Engineer and Owner.

3. Remove the Helical Pile or Helical Anchor and pre-drill a 4-inch diameter pilot hole in the same location and reinstall the anchor/pile.

4. If the obstruction is shallow, remove the Helical Pile or Helical Anchor and remove the obstruction by surface excavation. Backfill and compact the resulting excavation and reinstall the anchor/pile.

5. Remove the Helical Pile or Helical Anchor and relocate 1-foot to either side of the installation location subject to the review and acceptance of Engineer and Owner.

6. Reverse the direction of torque, back-out the Helical Pile or Helical Anchor a distance of 1 to 2 feet and attempt to reinstall by decreasing crowd and Augering through the obstruction.

7. Remove the Helical Pile or Helical Anchor and sever the uppermost helical bearing plate from the Lead Section if more than one helical bearing plate is in use, or reshape the helical bearing plates to create a special tapered edge by cutting with a band saw. Reinstall the anchor or pile with revised helical bearing plate configuration.

C. If the final installation torque is not achieved at the contract length, the Contractor shall have the following options:

1. Until the maximum depth is achieved (if any), install the Helical Pile or Helical Anchor deeper using additional Extension Sections.

2. Remove the Helical Pile or Helical Anchor and install a new one with additional and/or larger diameter helical bearing plates.

3. Decrease the rated load capacity of the Helical Pile or Helical Anchor and install additional Helical Piles or Helical Anchors. The rated capacity and additional unit location shall be subject to the review and acceptance of the Engineer and Owner.

3.5 ALLOWABLE TOLERANCES

A. Helical Piles and Helical Anchors shall be installed as close to the specified installation and orientation angles as possible. Tolerance for departure from installation and orientation angles shall be +/- 5 degrees.

B. Helical Piles, Helical Anchors, and Bracket Assemblies shall be installed at the locations and to the elevations shown on the Plans. Tolerances for Bracket Assembly placement shall be +/- 1 inch in both directions perpendicular to the shaft and +/- 1/4 inch in a direction parallel with the shaft unless otherwise specified.
3.6 QUALITY ASSURANCE

A. The Contractor shall provide the Engineer and Owner copies of installation records within 48 hours after each installation is completed. These installation records shall include, but are not limited to, the following information:

1. Name of project and Contractor
2. Name of Contractor’s supervisor during installation
3. Date and time of installation
4. Name and model of installation equipment
5. Type of torque indicator used
6. Location of Helical Pile or Helical Anchor by grid location, diagram, or assigned identification number
7. Type and configuration of Lead Section with length of shaft and number and size of helical bearing plates
8. Type and configuration of Extension Sections with length and number and size of helical bearing plates, if any
9. Installation duration and observations
10. Total length installed
11. Final elevation of top of shaft and cut-off length, if any
12. Final plumbness or inclination of shaft
13. Installation torque at minimum three-foot depth intervals
14. Final installation torque
15. Comments pertaining to interruptions, obstructions, or other relevant information
16. Verified axial load capacity

END OF SECTION 316613
SECTION 329113 - LANDSCAPE GRADING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Final grade topsoil for finish landscaping.
   2. Minor regrading to create a drainage slope away from building foundation perimeter.

B. Related Sections:
   1. Section 312000 - Earthworks
   2. Section 329200 - Seeding and Soil Supplements: Finish ground cover.

1.2 SUBMITTALS

A. Materials Source: Submit name of imported materials source.

B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

PART 2 PRODUCTS

2.1 TOPSOIL

A. ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
   1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
      a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Topsoil shall be provided by Laurel Valley Soils: (866) 587-6457.

2.2 GRAVEL

A. ¾” clean stone; granite chips or similar (must be chemically inert)

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify building and trench backfilling have been inspected.

B. Verify substrate base has been contoured and compacted.
3.2 PREPARATION

A. Protect landscaping and other features remaining as final Work.

B. Protect existing structures, walks, utilities, and paving.

3.3 SUBSTRATE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove contaminated subsoil.

C. Scarify surface to depth of 6 inches (150 mm) where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

3.5 PLACING TOPSOIL

A. Place topsoil in areas where seeding and planting is required to thickness as shown on the plans. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material to prevent damage.

E. Lightly compact placed topsoil.

F. Remove surplus subsoil and topsoil from site.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.6 LAWN AND PLANTING BED ESTABLISHMENT

A. Refer to Section 329200 Seeding for information required to establish or restore lawns.

B. During exterior grading and soil preparation, keep adjacent paving, walls, fountains, structures, lawn areas, and construction clean and work area in an orderly condition.

C. Protect all exterior plants, existing masonry, and structures from damage due to landscape operations,
operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

3.7 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

3.8 TOLERANCES

A. Top of Topsoil: Plus or minus 1/2 inch (13 mm).

3.9 PROTECTION OF INSTALLED WORK

A. Prohibit construction traffic over topsoil.
SECTION 329200 - SEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fertilizing.
   2. Seeding.

B. Related Sections:
   1. Section 329113 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the Work of this section.

1.2 REFERENCES

A. ASTM International:

1.3 DEFINITIONS

A. Weeds: Vegetative species other than specified species to be established in given area.

1.4 SUBMITTALS

A. Product Data: Submit data for seed mix, fertilizer, mulch and other accessories.

B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

B. Perform Work in accordance with requirements listed on the landscape drawings.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
1.8 MAINTENANCE SERVICE
   A. Maintain seeded areas immediately after placement until grass is well established and exhibits vigorous growing condition for two cuttings.

PART 2 PRODUCTS

2.1 SEED MIXTURE
   A. Furnish materials in accordance with the plans.
   B. Pinelands Seed Mixture:
      | Seed Type                  | Rate   |
      |---------------------------|--------|
      | Hard Fescue               | 50 lbs./acre |
      | Strong Creeping Red Fescue| 50 lbs./acre |
      | Chewings Fescue           | 50 lbs./acre |

2.2 ACCESSORIES
   A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
   B. Fertilizer: Commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil in accordance with the Ocean County Soil Conservation District standards.
   C. Lime: ASTM C602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
   D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.
   E. Herbicide: in accordance with the Ocean County Soil Conservation District standards.
   F. Stakes: Softwood lumber, chisel pointed.
   G. String: Inorganic fiber.

2.3 SOURCE QUALITY CONTROL
   A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.
   B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.
   C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 EXECUTION

3.1 EXAMINATION
   A. Verify prepared soil base is ready to receive the Work of this section.
3.2 Fertilizing

A. Apply lime at application rate in accordance with the Ocean County Soil Conservation District standards. Work lime into top 6 inches (150 mm) of soil.

B. Apply fertilizer at application rate in accordance with the Ocean County Soil Conservation District standards.

C. Apply after smooth raking of topsoil and prior to roller compaction.

D. Do not apply fertilizer at same time or with same machine used to apply seed.

E. Mix fertilizer thoroughly into upper 2 inches (50 mm) of topsoil.

F. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

3.3 Seeding

A. Apply seed at rate of 3.65 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Planting Season: in accordance with the Ocean County Soil Conservation District standards.

D. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph (19 km/h).

E. Roll seeded area with roller not exceeding 112 lbs/linear foot (15.5 kg/m).

F. Immediately following seeding and compacting, apply mulch to thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.

G. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil.

3.4 Seed Protection

A. Identify seeded areas with stakes and string around area periphery.

3.5 Maintenance

A. Mow grass at regular intervals to maintain at maximum height of 2-1/2 inches (65 mm). Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.

B. Neatly trim edges and hand clip where necessary.

C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.

D. Water to prevent grass and soil from drying out.

E. Control growth of weeds. Apply herbicides. Remedy
F. Repair washouts or gullies.

G. Protect seeded areas with warning signs during maintenance damage resulting from improper use of herbicides.

H. Immediately reseed areas showing bare spots.

END OF SECTION