

STATE OF DELAWARE  
DELAWARE ARMY NATIONAL GUARD  
CONTRACT 2018-12

SPECIFICATIONS  
FOR  
SEAFORD ARMORY BUILDING  
DEMOLITION

AT

23440 Ross Station Road  
Seaford, Delaware  
19973

PREPARED  
BY

Duffield Associates  
and  
Harvard Environmental

August 6, 2018

NOT FOR BIDDING

**PROJECT MANUAL**

**SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12**

**PROJECT TEAM**

Owner:

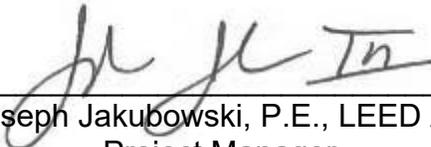
Delaware Army National Guard  
1 Vavala Way  
New Castle, Delaware 19720

Engineer:

 **DUFFIELD  
ASSOCIATES**  
Soil, Water & the Environment  
Duffield Associates, Inc.  
5400 Limestone Road  
Wilmington, Delaware 19808  
Phone: 302.239.6634  
Fax: 302.239.8485



August 2018

  
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Joseph Jakubowski, P.E., LEED AP  
Project Manager  
Duffield Associates' Project No. 9463.CD

**ISSUED FOR BID**

NOT FOR BIDDING

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## INVITATION TO BID

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

Sealed bids for **DEARNG Contract No. 2018-12 – DEARNG Seaford Armory Building Demolition**, will be received by the Delaware Army National Guard at the Security Officers desk in the Main Lobby of the Biden National Guard/Reserve Center, 250 Airport Road, New Castle, Delaware, 19720 until **1:30 PM local time on September 21, 2018**, at which time they will be publicly opened and read aloud in the Multi-Purpose Room.

Bidders are required to show identification at the Guard Booth when entering the site and must sign in at the Security Officers desk once inside. Please allow sufficient time to comply with these requirements. No exceptions. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.

Project involves demolition and removal of a one (1) story building, abandonment of the utility connections to the building, removal of the existing wash rack and shed, and construction of a bituminous concrete storage lot.

Attention is called to the construction schedule as detailed in the Contract Documents.

A **MANDATORY** Pre-Bid Meeting will be held on **September 5, 2018 at 10:30 AM** at the former Seaford Armory, 23440 Ross Station Road, Seaford, DE 19973, for the purpose of establishing the listing of subcontractors and to answer questions. Be prepared to show valid identification when entering the site. Representatives of each party to any Joint Venture must attend this meeting. **ATTENDANCE OF THIS MEETING IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Sealed bids shall be addressed to the Delaware Army National Guard, Biden National Guard/Reserve Center, 250 Airport Road, New Castle, Delaware, 19720, ATTN: Mr. William R. Davis. The outer envelope should clearly indicate: **DEARNG CONTRACT NO. 2018-12 – DEARNG Seaford Armory Building Demolition - SEALED BID – DO NOT OPEN.**

Contract Documents can be obtained at the Pre-Bid Meeting or before, by calling 302-239-6634 upon receipt of \$50.00 – electronic, or \$100.00 hardcopy per set/ non-refundable. Checks are to be made payable to “Duffield Associates, Inc.”

Construction documents will be available for review at the office of the Engineer, Duffield Associates, Inc., 5400 Limestone Road, Wilmington, DE 19808.

Minority Business Enterprises (MBE), Disadvantaged Business Enterprises (DBE), Women-Owned Business Enterprises (WBE) and Veteran-Owned Business Enterprises (VBE) will be afforded full opportunity to submit bids on this contract and will not be subject to discrimination on the basis of race, color, national origin or sex in consideration of this award.

Each bid must be accompanied by a bid security equivalent to ten percent of the bid amount and all additive alternates. The successful bidder must post a performance bond and payment bond in a sum equal to 100 percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days notice by certified delivery, facsimile machine or other electronic means to those bidders receiving plans.

**END OF ADVERTISEMENT FOR BIDS**

## INSTRUCTIONS TO BIDDERS

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NOT FOR BIDDING

**ARTICLE 1: GENERAL**

1.1 DEFINITIONS

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 STATE: The State of Delaware.

1.3 AGENCY: Contracting State Agency as noted on cover sheet.

1.4 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.5 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.6 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.7 AGREEMENT: The form of the Agreement shall be AIA Document A101, Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

1.8 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.9 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).

- 1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.
- 1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.
- 1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.
- 1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.
- 1.20 CONTRACTOR: Any individual, firm or corporation with whom a contract is made by the Agency.
- 1.21 SUBCONTRACTOR: An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.
- 1.22 CONTRACT BOND: The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

**ARTICLE 2: BIDDER'S REPRESENTATIONS**

- 2.1 PRE-BID MEETING
- 2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.
- 2.2 By submitting a Bid, the Bidder represents that:
- 2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.
- 2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's his personal observations with the requirements of the proposed Contract Documents.
- 2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.
- 2.3 JOINT VENTURE REQUIREMENTS
- 2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.
- 2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.
- 2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.

- 2.3.4 All required insurance certificates shall name both Joint Venturers.
- 2.3.5 Both Joint Venturers shall sign the Bid Form and shall submit a copy of a valid Delaware Business License with their Bid.
- 2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.
- 2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.
- 2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.

2.4 ASSIGNMENT OF ANTITRUST CLAIMS

- 2.4.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

**ARTICLE 3: BIDDING DOCUMENTS**

3.1 COPIES OF BID DOCUMENTS

- 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Architectural/Engineering firm designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.
- 3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.
- 3.1.4 The Agency and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.
- 3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.
- 3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.

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

3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

### 3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.

3.3.2 Requests for substitutions shall be made in writing to the Architect at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.

3.3.4 The Architect shall have no obligation to consider any substitutions after the Contract award.

### 3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than 4 days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.

3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

## ARTICLE 4: BIDDING PROCEDURES

### 4.1 PREPARATION OF BIDS

4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.

4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.

4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).

- 4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.
- 4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.
- 4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter "No Change". The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.
- 4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.
- 4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.
- 4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.
- 4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.
- 4.1.11 Each bidder shall include in their bid a copy of a valid Delaware Business License.'
- 4.1.12 Each bidder shall include a signed Affidavit for the Bidder certifying compliance with OMB Regulation 4104 - "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects." "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.
- 4.2 BID SECURITY
- 4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least 10% of the bid plus all add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard OMB form (attached).
- 4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.
- 4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.
- 4.3 SUBCONTRACTOR LIST
- 4.3.1 As required by Delaware Code, Title 29, section 6962(d)(10)b, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE. A Bid will be considered non-responsive unless the completed list is included.

4.3.2 Provide the Name and Address for each listed subcontractor. Addresses by City, Town or Locality, plus State, will be acceptable.

4.3.3 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.

#### 4.4 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.4.1 During the performance of this contract, the contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

#### 4.5 PREVAILING WAGE REQUIREMENT

4.5.1 Wage Provisions: For renovation and new construction projects whose costs exceed the thresholds contained in Delaware Code, Title 29, Section 6960, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

4.5.2 The employer shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

4.5.3 The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.

4.5.4 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

#### 4.6 SUBMISSION OF BIDS

4.6.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, project number, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.

- 4.6.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked "LATE BID" and returned.
- 4.6.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.
- 4.6.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.
- 4.6.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.
- 4.7 **MODIFICATION OR WITHDRAW OF BIDS**
- 4.7.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.
- 4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.
- 4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

**ARTICLE 5: CONSIDERATION OF BIDS**

- 5.1 **OPENING/REJECTION OF BIDS**
- 5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.
- 5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.
- 5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.
- 5.2 **COMPARISON OF BIDS**
- 5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination.
- 5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.
- 5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.
- 5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

### 5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

- A. The Bidder's financial, physical, personnel or other resources including Subcontracts;
- B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;
- C. The Bidder's written safety plan;
- D. Whether the Bidder is qualified legally to contract with the State;
- E. Whether the Bidder supplied all necessary information concerning its responsibility; and,
- F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.

5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.

5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.

5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.

5.3.3.2 Evidence of collusion among Bidders.

5.3.3.3 Unsatisfactory performance record as evidenced by past experience.

5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.

5.3.3.5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.

5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.

5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

### 5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT

5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.

5.4.2 Per Section 6962(d)(13) a., Title 29, Delaware Code, "The contracting agency shall award any public works contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, unless the Agency elects to award on the basis of best value, in which case the election to award on the basis of best value shall be stated in the Invitation To Bid."

- 5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.
- 5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.
- 5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. The successful Bidder shall provide, at least two business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of one year after the date of substantial completion.
- 5.4.6 If the successful Bidder fails to execute the required Contract, Bond and all required information, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.
- 5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) and a copy of its Delaware business license, and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.
- 5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

## **ARTICLE 6: POST-BID INFORMATION**

### **6.1 CONTRACTOR'S QUALIFICATION STATEMENT**

- 6.1.1 Bidders to whom award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

### **6.2 BUSINESS DESIGNATION FORM**

- 6.2.1 Successful bidder shall be required to accurately complete an Office of Management and Budget Business Designation Form for Subcontractors.

## **ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND**

### **7.1 BOND REQUIREMENTS**

- 7.1.1 The cost of furnishing the required Bonds, that are stipulated in the Bidding Documents, shall be included in the Bid.

- 7.1.2 If the Bidder is required by the Agency to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.
- 7.1.3 The Performance and Payment Bond forms used shall be the standard OMB forms (attached).
- 7.2 TIME OF DELIVERY AND FORM OF BONDS
  - 7.2.1 The bonds shall be dated on or after the date of the Contract.
  - 7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

**ARTICLE 8: FORM OF AGREEMENT BETWEEN AGENCY AND CONTRACTOR**

- 8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

END OF INSTRUCTIONS TO BIDDERS

NOT FOR BIDDING

NOT FOR BIDDING

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**BID FORM**

**For Bids Due:** September 21, 2018 at 1:30 pm

**To:** Delaware Army National Guard  
Major Joseph R. "Beau" Biden III  
National Guard/Reserve Center  
1 Vavala Way  
New Castle, Delaware 19720-1502  
Attn: Mr. Marc Ordndorff

**Name of Bidder:** \_\_\_\_\_

**Delaware Business License No.:** \_\_\_\_\_ **Taxpayer ID No.:** \_\_\_\_\_  
**(A copy of Bidder's Delaware Business License must be attached to this form.)**

**(Other License Nos.):** \_\_\_\_\_

**Phone No.:** (        ) \_\_\_\_\_ - \_\_\_\_\_ **Fax No.:** (        ) \_\_\_\_\_ - \_\_\_\_\_

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

\$ \_\_\_\_\_  
(\$ \_\_\_\_\_ )

**ALTERNATES**

Alternate prices conform to applicable project specification section. Refer to specifications for a complete description of the following Alternates. An "ADD" or "DEDUCT" amount is indicated by the crossed out part that does not apply.

ALTERNATE No. 1: \_\_\_\_\_ (BRIEF DESCRIPTION)

Add/Deduct: \_\_\_\_\_  
(\$ \_\_\_\_\_ )

ALTERNATE No. 2: \_\_\_\_\_ (BRIEF DESCRIPTION)

Add/Deduct: \_\_\_\_\_  
(\$ \_\_\_\_\_ )

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**BID FORM**

ALTERNATE No. 3: \_\_\_\_\_ (BRIEF DESCRIPTION) \_\_\_\_\_

Add/Deduct: \_\_\_\_\_  
(\$ \_\_\_\_\_ )

**UNIT PRICES**

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	<b><u>ADD</u></b>	<b><u>DEDUCT</u></b>
UNIT PRICE No. 1: <u>Undercutting, placement and compaction of</u> <u>DelDOT Type B Graded Aggregate</u>	\$ <u>70.00/cy</u>	\$ <u>N/A</u>
UNIT PRICE No. 2: _____ (BRIEF DESCRIPTION) _____	\$ _____	\$ _____
UNIT PRICE No. 3: _____ (BRIEF DESCRIPTION) _____	\$ _____	\$ _____

**ALLOWANCES**

The following allowance is set aside for unpredicted scope on the project, to be verified and billed as the project conditions dictate. Allowance is to be included in Base Bid. Allowance shall be utilized at the Owner's discretion and shall be returned to the Owner if not used.

ALLOWANCE No. 1: \$ 30,000.00

SEAFORD ARMORY BUILDING DEMOLITION  
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SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**BID FORM**

I/We acknowledge Addendums numbered \_\_\_\_\_ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within 60 calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By \_\_\_\_\_ Trading as \_\_\_\_\_  
(Individual's / General Partner's / Corporate Name)  
\_\_\_\_\_  
(State of Corporation)

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Witness: \_\_\_\_\_  
(SEAL)

By: \_\_\_\_\_  
( Authorized Signature )  
\_\_\_\_\_  
( Title )

Date: \_\_\_\_\_

**ATTACHMENTS**

- Sub-Contractor List
- Non-Collusion Statement
- Affidavit of Employee Drug Testing Program
- Bid Security
- (Others as Required by Project Manuals)

SEAFORD ARMORY BUILDING DEMOLITION  
SEAFORD, DELAWARE

DELAWARE ARMY NATIONAL GUARD  
DEARNG PROJECT NO. 2018-12

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**BID FORM**

**SUBCONTRACTOR LIST**

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor **must be listed for each category** where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, it is **required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.** This form must be filled out completely with no additions or deletions.

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City &amp; State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1. Asbestos Abatement	_____	_____	_____
2. Demolition	_____	_____	_____
3. E & S Controls	_____	_____	_____
4. Sitework	_____	_____	_____
5. Pavement Construction	_____	_____	_____
6. Crack Sealing	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**BID FORM**

**NON-COLLUSION STATEMENT**

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date *(to the Office of Management and Budget, Division of Facilities Management)*.

All the terms and conditions of DEARNG Project No. 2018-12 have been thoroughly examined and are understood.

**NAME OF BIDDER:** \_\_\_\_\_

**AUTHORIZED REPRESENTATIVE (TYPED):** \_\_\_\_\_

**AUTHORIZED REPRESENTATIVE (SIGNATURE):** \_\_\_\_\_

**TITLE:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_

**E-MAIL:** \_\_\_\_\_

**PHONE NUMBER:** \_\_\_\_\_

Sworn to and Subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

My Commission expires \_\_\_\_\_ NOTARY PUBLIC \_\_\_\_\_.

**THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.**

SEAFORD ARMORY BUILDING DEMOLITION  
DELAWARE ARMY NATIONAL GUARD  
2344 ROSS STATION ROAD  
SEAFORD, DELAWARE  
DEARNG PROJECT NO: 2018-12

**AFFIDAVIT**  
**OF**  
**EMPLOYEE DRUG TESTING PROGRAM**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors that complies with this regulation:

**Contractor/Subcontractor Name:** \_\_\_\_\_

**Contractor/Subcontractor Address:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Authorized Representative (typed or printed):** \_\_\_\_\_

**Authorized Representative (signature):** \_\_\_\_\_

**Title:** \_\_\_\_\_

Sworn to and Subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

My Commission expires \_\_\_\_\_ NOTARY PUBLIC \_\_\_\_\_.

**THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.**

STATE OF DELAWARE  
OFFICE OF MANAGEMENT AND BUDGET

**BID BOND**

TO ACCOMPANY PROPOSAL  
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: \_\_\_\_\_  
\_\_\_\_\_ of \_\_\_\_\_ in the County of \_\_\_\_\_  
\_\_\_\_\_ and State of \_\_\_\_\_ as **Principal**, and \_\_\_\_\_  
\_\_\_\_\_ of \_\_\_\_\_ in the County of \_\_\_\_\_  
and State of \_\_\_\_\_ as **Surety**, legally authorized to do business in the State of Delaware  
("State"), are held and firmly unto the **State** in the sum of \_\_\_\_\_  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_), or \_\_\_\_\_ percent not to exceed \_\_\_\_\_  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_  
\_\_\_\_\_ ) of amount of bid on Contract No. \_\_\_\_\_, to be paid to the **State** for the  
use and benefit of Delaware Army National Guard for which payment well and truly to be made, we  
do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and  
severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal**  
who has submitted to the Delaware Army National Guard a certain proposal to enter into this contract  
for the furnishing of certain material and/or services within the **State**, shall be awarded this Contract,  
and if said **Principal** shall well and truly enter into and execute this Contract as may be required by  
the terms of this Contract and approved by the Delaware Army National Guard this Contract to be  
entered into within twenty days after the date of official notice of the award thereof in accordance  
with the terms of said proposal, then this obligation shall be void or else to be and remain in full force  
and virtue.

Sealed with \_\_\_\_\_ seal and dated this \_\_\_\_\_ day of \_\_\_\_\_ in the year of our Lord  
two thousand and \_\_\_\_\_ (20\_\_\_\_).

SEALED, AND DELIVERED IN THE  
Presence of

\_\_\_\_\_  
Name of Bidder (Organization)

Corporate  
Seal

By:

\_\_\_\_\_  
Authorized Signature

Attest \_\_\_\_\_

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name of Surety

Witness: \_\_\_\_\_

By:

\_\_\_\_\_  
Title

**STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR A101-2007**

The contract to be utilized on this project shall be the "Standard Form of Agreement Between Owner and Contractor" AIA Document A101-2007.

NOT FOR BIDDING



# AIA<sup>®</sup> Document A101<sup>™</sup> – 2007

## Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

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

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

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

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

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

The Owner and Contractor agree as follows.

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

AIA Document A201<sup>™</sup>-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

TABLE OF ARTICLES

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

**ARTICLE 1 THE CONTRACT DOCUMENTS**

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

**ARTICLE 2 THE WORK OF THIS CONTRACT**

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

**ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

*(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

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

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than ( ) days from the date of commencement, or as follows:

*(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)*

Init.

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.  
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

#### ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$ ), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:  
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

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

Item	Units and Limitations	Price Per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.4 Allowances included in the Contract Sum, if any:  
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price
------	-------

#### ARTICLE 5 PAYMENTS

##### § 5.1 PROGRESS PAYMENTS

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

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

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.  
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported

Init.

by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

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

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent ( %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent ( %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and  
*(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)*
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

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

*(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)*

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

## § 5.2 FINAL PAYMENT

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

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

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

init.

**ARTICLE 6 DISPUTE RESOLUTION**

**§ 6.1 INITIAL DECISION MAKER**

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.  
*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

**§ 6.2 BINDING DISPUTE RESOLUTION**

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

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

- Arbitration pursuant to Section 15.4 of AIA Document A201–2007
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

**ARTICLE 7 TERMINATION OR SUSPENSION**

**§ 7.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

**§ 7.2** The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

**ARTICLE 8 MISCELLANEOUS PROVISIONS**

**§ 8.1** Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

**§ 8.2** Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

%

**§ 8.3** The Owner's representative:  
*(Name, address and other information)*

**§ 8.4** The Contractor's representative:  
*(Name, address and other information)*

Init.

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

#### ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

§ 9.1.4 The Specifications:  
*(Either list the Specifications here or refer to an exhibit attached to this Agreement.)*

Section	Title	Date	Pages
---------	-------	------	-------

§ 9.1.5 The Drawings:  
*(Either list the Drawings here or refer to an exhibit attached to this Agreement.)*

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

Number	Date	Pages
--------	------	-------

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- 1 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

init.

- .2 Other documents, if any, listed below:  
*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201-2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)*

**ARTICLE 10 INSURANCE AND BONDS**

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.

*(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)*

Type of insurance or bond

Limit of liability or bond amount (\$0.00)

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

\_\_\_\_\_  
OWNER (Signature)

\_\_\_\_\_  
CONTRACTOR (Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)

Init.

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User Notes:

(1247046248)

## SUPPLEMENT TO AGREEMENT BETWEEN OWNER AND CONTRACTOR A101-2007

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor," AIA Document A101-2007. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

### ARTICLE 5: PAYMENTS

#### 5.1 PROGRESS PAYMENTS

#### 5.1.3 Delete paragraph 5.1.3 in its entirety and replace with the following:

"Provided that a valid Application for Payment is received by the Architect that meets all requirements of the Contract, payment shall be made by the Owner not later than 30 days after the Owner receives the valid Application for Payment."

### ARTICLE 6: DISPUTE RESOLUTION

#### 6.2 BINDING DISPUTE RESOLUTION

Check Other – and add the following sentence:

"Any remedies available in law or in equity."

### ARTICLE 8: MISCELLANEOUS PROVISIONS

#### 8.2 Insert the following:

"Payments are due 30 days after receipt of a valid Application for Payment. After that 30 day period, interest may be charged at the rate of 1% per month not to exceed 12% per annum."

#### 8.5 Delete paragraph 8.5 in its entirety and replace with the following:

"The Contractor's representative shall not be changed without ten days written notice to the Owner."

END OF SUPPLEMENT TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

STATE OF DELAWARE  
OFFICE OF MANAGEMENT AND BUDGET

**PERFORMANCE BOND**

Bond Number: \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that we, \_\_\_\_\_, as principal ("**Principal**"), and \_\_\_\_\_, a \_\_\_\_\_ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the \_\_\_\_\_ ("**Owner**") (*insert State agency name*), in the amount of \_\_\_\_\_ (\$\_\_\_\_\_), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. \_\_\_\_\_ dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

**Surety**, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

**Surety**, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be

done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

**Surety** hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

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

PRINCIPAL

Name: \_\_\_\_\_

Witness or Attest:

Address: \_\_\_\_\_

\_\_\_\_\_  
Name:

By: \_\_\_\_\_ (SEAL)

(Corporate Seal)

Name:  
Title:

SURETY

Name: \_\_\_\_\_

Witness or Attest:

Address: \_\_\_\_\_

\_\_\_\_\_  
Name:

By: \_\_\_\_\_ (SEAL)

(Corporate Seal)

Name:  
Title:

STATE OF DELAWARE  
OFFICE OF MANAGEMENT AND BUDGET

**PAYMENT BOND**

Bond Number: \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that we, \_\_\_\_\_, as principal ("**Principal**"), and \_\_\_\_\_, a \_\_\_\_\_ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the \_\_\_\_\_ ("**Owner**") Delaware Army National Guard, in the amount of \_\_\_\_\_ (\$\_\_\_\_\_), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. \_\_\_\_\_ dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

**Surety**, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

**Surety** hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

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

PRINCIPAL

Name: \_\_\_\_\_

Witness or Attest:

Address: \_\_\_\_\_

\_\_\_\_\_  
Name:

(Corporate Seal)

By: \_\_\_\_\_ (SEAL)

Name:

Title:

SURETY

Name: \_\_\_\_\_

Witness or Attest:

Address: \_\_\_\_\_

\_\_\_\_\_  
Name:

(Corporate Seal)

By: \_\_\_\_\_ (SEAL)

Name:

Title:

**APPLICATION AND CERTIFICATE FOR PAYMENT FORMS G702 & G703**

The contract to be utilized on this project shall be AIA Documents G702 and G703.

NOT FOR BIDDING



# AIA Document G702™ - 1992

## Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: 001 Distribution to: OWNER:  
 FROM: VIA ARCHITECT: CONTRACT FOR: General Construction ARCHITECT:  
 CONTRACTOR: CONTRACT DATE: CONTRACTOR:  
 PROJECT NOS: / / FIELD:  
 OTHER:

### CONTRACTOR'S APPLICATION FOR PAYMENT

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

1. ORIGINAL CONTRACT SUM ..... \$ 0.00
2. NET CHANGE BY CHANGE ORDERS ..... \$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) ..... \$ 0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) ..... \$ 0.00
5. RETAINAGE:
  - a. 0 % of Completed Work (Column D + E on G703) ..... \$ 0.00
  - b. 0 % of Stored Material (Column F on G703) ..... \$ 0.00
 Total Retainage (Lines 5a + 5b or Total in Column I of G703) ..... \$ 0.00
6. TOTAL EARNED LESS RETAINAGE ..... \$ 0.00  
(Line 4 Less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... \$ 0.00  
(Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE ..... \$ 0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6) ..... \$ 0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ 0.00	\$ 0.00
Total approved this Month	\$ 0.00	\$ 0.00
<b>TOTALS</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>
NET CHANGES by Change Order	\$	0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: \_\_\_\_\_ Date: \_\_\_\_\_  
 By: \_\_\_\_\_ State of: \_\_\_\_\_  
 County of: \_\_\_\_\_  
 Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_  
 Notary Public: \_\_\_\_\_  
 My Commission expires: \_\_\_\_\_

### ARCHITECT'S CERTIFICATE FOR PAYMENT

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

AMOUNT CERTIFIED ..... \$ 0.00  
 (Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT: \_\_\_\_\_ Date: \_\_\_\_\_  
 By: \_\_\_\_\_

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

## Continuation Sheet

AIA Document, G702™ - 1992, Application and Certification for Payment, or G736™ - 2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.  
 In tabulations below, amounts are in US dollars.  
 Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 001  
 APPLICATION DATE:  
 PERIOD TO:  
 ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		E THIS PERIOD	F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
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		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
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		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
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		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00 %	0.00	0

**GENERAL CONDITIONS  
TO THE  
CONTRACT**

The General Conditions of this Contract are as stated in the American Institute of Architects Document AIA A201 (2007 Edition) entitled General Conditions of the Contract for Construction and is part of this project manual as if herein written in full.

## SUPPLEMENTARY GENERAL CONDITIONS A201-2007

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201-2007. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

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## ARTICLE 1: GENERAL PROVISIONS

### 1.1 BASIC DEFINITIONS

#### 1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence in its entirety and replace with the following:

“The Contract Documents also include Advertisement for Bid, Instructions to Bidder, sample forms, the Bid Form, the Contractor’s completed Bid and the Award Letter.”

Add the following Paragraph:

1.1.1.1 In the event of conflict or discrepancies among the Contract Documents, the Documents prepared by the State of Delaware, Division of Facilities Management shall take precedence over all other documents.

### 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following Paragraphs:

1.2.4 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect’s interpretation.

1.2.5 The word “PROVIDE” as used in the Contract Documents shall mean “FURNISH AND INSTALL” and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work.

1.2.6 The word “PRODUCT” as used in the Contract Documents means all materials, systems and equipment.

### 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Delete Paragraph 1.5.1 in its entirety and replace with the following:

“All pre-design studies, drawings, specifications and other documents, including those in electronic form, prepared by the Architect under this Agreement are, and shall remain, the property of the Owner whether the Project for which they are made is executed or not. Such documents may be used by the Owner to construct one or more like Projects without the approval of, or additional compensation to, the Architect. The Contractor, Subcontractors, Sub-subcontractors and Material or Equipment Suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect’s consultants appropriate to and for use in the execution of their Work under the Contract Documents. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or Material and Equipment Supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and Architect’s consultants.

The Architect shall not be liable for injury or damage resulting from the re-use of drawings and specifications if the Architect is not involved in the re-use Project. Prior to re-use of construction documents for a Project in which the Architect is not also involved, the Owner will remove from such documents all identification of the original Architect, including name, address and professional seal or stamp.”

Delete Paragraph 1.5.2 in its entirety.

## **ARTICLE 2: OWNER**

### **2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

To Subparagraph 2.2.3 – Add the following sentence:

“The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities.”

Delete Subparagraph 2.2.5 in its entirety and substitute the following:

2.2.5 The Contractor shall be furnished free of charge up to five (5) sets of the Drawings and Project Manuals. Additional sets will be furnished at the cost of reproduction, postage and handling.

## **ARTICLE 3: CONTRACTOR**

### **3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

Amend Paragraph 3.2.2 to state that any errors, inconsistencies or omissions discovered shall be reported to the Architect and Owner immediately.

Delete the third sentence in Paragraph 3.2.3.

### **3.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

Add the following Paragraphs:

3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Architect to be incompetent or disposed to be so disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect.

3.3.4 The Contractor must provide suitable storage facilities at the Site for the proper protection and safe storage of their materials. Consult the Owner and the Architect before storing any materials.

3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use.

3.4 LABOR AND MATERIALS

Add the Following Paragraphs:

3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to insure that its Work and adjacent, related Work, will finish to proper contours, planes and levels. Promptly notify the General Contractor/Construction Manager of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized.

3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times.

3.5 WARRANTY

Add the following Paragraphs:

3.5.1 The Contractor will guarantee all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two years after Acceptance by the Owner, and will maintain all items in perfect condition during the period of guarantee.

3.5.2 Defects appearing during the period of guarantee will be made good by the Contractor at his expense upon demand of the Owner, it being required that all work will be in perfect condition when the period of guarantee will have elapsed.

3.5.3 In addition to the General Guarantee there are other guarantees required for certain items for different periods of time than the two years as above, and are particularly so stated in that part of the specifications referring to same. The said guarantees will commence at the same time as the General Guarantee.

3.5.4 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor's expense.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Paragraphs:

3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.

3.11.2 At the completion of the project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.

3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

3.17 In the second sentence of the paragraph, insert "indemnify" between "shall" and "hold".

#### **ARTICLE 4: ADMINISTRATION OF THE CONTRACT**

##### **4.2 ADMINISTRATION OF THE CONTRACT**

Delete the first sentence of Paragraph 4.2.7 and replace with the following:

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples for the purpose of checking for conformance with the Contract Documents.

Delete the second sentence of Paragraph 4.2.7 and replace with the following:

The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Owner's professional judgment to permit adequate review.

Add the following Paragraph:

4.2.10.1 There will be no full-time project representative provided by the Owner or Architect on this project.

Add to Paragraph 4.2.13 "and in compliance with all local requirements." to the end of the sentence

#### **ARTICLE 5: SUBCONTRACTORS**

##### **5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

Delete Paragraph 5.2.3 in its entirety and replace with the following:

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4.

#### **ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

##### **6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

Delete Paragraph 6.1.4 in its entirety.

##### **6.2 MUTUAL RESPONSIBILITY**

6.2.3 In the second sentence, strike the word "shall" and insert the word "may".

## ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK IN THE GENERAL REQUIREMENTS)

## ARTICLE 8: TIME

### 8.2 PROGRESS AND COMPLETION

Add the following Paragraphs:

8.2.1.1 Refer to Specification Section SUMMARY OF WORK for Contract time requirements.

8.2.4 If the Work falls behind the Progress Schedule as submitted by the Contractor, the Contractor shall employ additional labor and/or equipment necessary to bring the Work into compliance with the Progress Schedule at no additional cost to the Owner.

### 8.3 DELAYS AND EXTENSION OF TIME

8.3.1 Strike "arbitration" and insert "remedies at law or in equity".

Add the following Paragraph:

8.3.2.1 The Contractor shall update the status of the suspension, delay, or interruption of the Work with each Application for Payment. (The Contractor shall report the termination of such cause immediately upon the termination thereof.) Failure to comply with this procedure shall constitute a waiver for any claim for adjustment of time or price based upon said cause.

Delete Paragraph 8.3.3 in its entirety and replace with the following:

8.3.3 Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Paragraph 8.3.1 shall be the Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay.

Add the following Paragraph:

8.3.4 By permitting the Contractor to work after the expired time for completion of the project, the Owner does not waive their rights under the Contract.

## ARTICLE 9: PAYMENTS AND COMPLETION

### 9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

9.2.1 The Schedule of Values shall be submitted using AIA Document G702, Continuation Sheet to G703.

9.2.2 The Schedule of Values is to include a line item for Project Closeout Document Submittal. The value of this item is to be no less than 1% of the initial contract amount.

9.3 APPLICATIONS FOR PAYMENT

Add the following Paragraph:

- 9.3.1.3 Application for Payment shall be submitted on AIA Document G702 "Application and Certificate for Payment", supported by AIA Document G703 "Continuation Sheet". Said Applications shall be fully executed and notarized.

Add the following Paragraphs:

- 9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments.
- 9.3.5 The Contractor shall provide a current and updated Progress Schedule to the Architect with each Application for Payment. Failure to provide Schedule will be just cause for rejection of Application for Payment.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following to 9.5.1:

- .8 failure to provide a current Progress Schedule;
- .9 a lien or attachment is filed;
- .10 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

Delete Paragraph 9.6.1 in its entirety and replace with the following:

- 9.6.1 After the Architect has approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner's receipt of the Certificate for Payment.

9.7 FAILURE OF PAYMENT

In first sentence, strike "seven" and insert "thirty (30)". Also strike "binding dispute resolution" and insert "remedies at law or in equity".

9.8 SUBSTANTIAL COMPLETION

To Subparagraph 9.8.3 - Add the following sentence:

"If the Architect is required to make more than 2 inspections of the same portion of work, the Contractor shall be responsible for all costs associated with subsequent inspections including but not limited to any Architect's fees."

- 9.8.5 In the second sentence, strike "shall" and insert "may".

**ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY**

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following Paragraphs:

10.1.1.1.1 Each Contractor shall develop a safety program in accordance with the Occupational Safety and Health Act of 1970. A copy of said plan shall be furnished to the Owner and Architect prior to the commencement of that Contractor's Work.

10.1.2 Each Contractor shall appoint a Safety Representative. Safety Representatives shall be someone who is on site on a full time basis. If deemed necessary by the Owner or Architect, Contractor Safety meetings will be scheduled. The attendance of all Safety Representatives will be required. Minutes will be recorded of said meetings by the Contractor and will be distributed to all parties as well as posted in all job offices/trailers etc.

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Paragraph:

10.2.4.1 As required in the Hazardous Chemical Act of June 1984, all vendors supplying any material that may be defined as hazardous must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a caution warning on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in foreseeable emergency situations. Material Safety Data Sheets shall be provided directly to the Owner, along with the shipping slips that include those products.

10.3 HAZARDOUS MATERIALS

Delete Paragraph 10.3.3 in its entirety.

Delete Paragraph 10.3.6 in its entirety.

**ARTICLE 11: INSURANCE AND BONDS**

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.4 Strike "the Owner" immediately following "(1)" and strike "and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations."

11.2 OWNER'S LIABILITY INSURANCE

Delete Paragraph 11.2 in its entirety.

11.3 PROPERTY INSURANCE

Delete Paragraph 11.3 in its entirety and replace with the following:

11.3 The State will not provide Builder's All Risk Insurance for the Project. The Contractor and all Subcontractors shall provide property coverage for their tools and equipment, as necessary. Any mandatory deductible required by the Contractor's Insurance shall be the responsibility of the Contractor.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 Add the following sentence: "The bonds will conform to those forms approved by the Office of Management and Budget."

**ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

12.2.2 AFTER SUBSTANTIAL COMPLETION

Add the following Paragraph:

12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

12.2.2.1 Strike "one" and insert "two".

12.2.2.2 Strike "one" and insert "two".

12.2.2.3 Strike "one" and insert "two".

12.2.5 In second sentence, strike "one" and insert "two".

**ARTICLE 13: MISCELLANEOUS PROVISIONS**

13.1 GOVERNING LAW

Strike "except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4."

13.6 INTEREST

Strike "the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located." Insert "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month."

13.7 TIME LIMITS ON CLAIMS

Strike the last sentence.

Add the following Paragraph:

13.8 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.8.1 If any provision, specifications or requirement of the Contract Documents conflict or is inconsistent with any statute, law or regulation of the government of the United State of America, the Contractor shall notify the Architect and Owner immediately upon discovery.

**ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT**

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Paragraph 14.4.3 in its entirety and replace with the following:

- 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and cost incurred by reason of such termination along with reasonable overhead.

**ARTICLE 15: CLAIMS AND DISPUTES**

- 15.1.2 Throughout the Paragraph strike "21" and insert "45".

15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

Delete Paragraph 15.1.6 in its entirety.

15.2 INITIAL DECISION

Delete Paragraph 15.2.5 in its entirety and replace with the following:

- 15.2.5 The Architect will approve or reject Claims by written decision, which shall state the reasons therefore and shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Architect shall be subject to mediation and other remedies at law or in equity.

Delete Paragraph 15.2.6 and its subparagraphs in their entirety.

15.3 MEDIATION

- 15.3.1 Strike "binding dispute resolution" and insert "any or all remedies at law or in equity".

- 15.3.2 In the first sentence, delete "administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedure in effect on the date of the Agreement," Strike "binding dispute resolution" and insert "remedies at law and in equity".

15.4 ARBITRATION

Delete Paragraph 15.4 and its sub-sections in its entirety.

**END OF SUPPLEMENTARY GENERAL CONDITIONS**



STATE OF DELAWARE  
DEPARTMENT OF LABOR  
DIVISION OF INDUSTRIAL AFFAIRS  
4425 NORTH MARKET STREET  
WILMINGTON, DELAWARE 19802

TELEPHONE (302) 761-8200  
FAX (302) 761-6601

**Via Electronic and Regular Mail**

June 20, 2018

Mr. Joseph Jakubowski  
Duffield Associates Inc  
5400 Limestone Rd.  
Wilmington, DE 19808

Re: DEARNG 2018-12 Seaford Armory Building Demolition, Sussex County, DE

Dear Mr. Jakubowski:

I am responding to your request for a category determination for the DEARNG 2018-12 Seaford Armory Building Demolition, which is a state funded construction project located in Sussex County, DE. The work consists of demolition and removal of a one (1) story building, abandonment of utility connections to the building, removal of the existing wash rack and shed and construction of a bituminous concrete storage lot. You estimate the total cost of construction for this project to be

Based upon the information you provided the Department of Labor has determined that this project is a Heavy Construction project.

Delaware's Prevailing Wage Regulations provide that the rates applicable to a project are the rates in effect on the date of publication of the specifications for that project. I have enclosed a certified copy of the March 15, 2018, prevailing wage rates for Heavy Construction to be included in your bid specification. However, please be advised that, in the event that a contract for a project is not executed within one hundred and twenty (120) days from the earliest date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project.

This determination is directed solely to the parties identified herein. It is based on the unique facts relevant to this matter. It does not constitute precedent and should not be cited as such by future parties.

Lastly, please see the enclosed debarment list. Entities/individuals listed shall not be permitted to bid on, be awarded or work on Delaware State funded construction projects, in the timeframe specified, as provided for under 29 Del.C. §6960 or other applicable State statutes.

If you have any questions or I can provide any additional assistance, please do not hesitate to contact me at (302) 761- 8327.

Sincerely,  
  
Salina Crossland

Labor Law Enforcement Officer II

Salina.crossland@state.de.us

Enclosures

STATE OF DELAWARE  
DEPARTMENT OF LABOR  
DIVISION OF INDUSTRIAL AFFAIRS  
OFFICE OF LABOR LAW ENFORCEMENT  
PHONE: 302 761 8200

Mailing Address:  
4425 North Market St., 3rd Fl  
Wilmington, DE 19802

Located at:  
4425 North Market St., 3rd Fl  
Wilmington, DE 19802

PREVAILING WAGES FOR HEAVY CONSTRUCTION EFFECTIVE MARCH 15, 2018

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	22.57	19.85	43.17
BOILERMAKERS	79.62	32.80	60.17
BRICKLAYERS	67.95	23.69	25.44
CARPENTERS	54.81	54.81	43.57
CEMENT FINISHERS	44.52	24.87	18.53
ELECTRICAL LINE WORKERS	75.22	74.83	66.03
ELECTRICIANS	68.70	68.70	68.70
GLAZIERS	20.85	18.11	12.26
INSULATORS	56.53	56.53	56.53
IRON WORKERS	62.73	62.25	59.55
LABORERS	46.20	46.20	46.20
MILLWRIGHTS	71.60	71.60	57.70
PAINTERS	81.41	81.41	81.41
PILEDRIVERS	76.77	40.19	31.28
PLASTERERS	19.64	17.06	11.53
PLUMBERS/PIPEFITTERS/STEAMFITTERS	89.13	79.50	18.27
POWER EQUIPMENT OPERATORS	69.29	64.30	69.29
SHEET METAL WORKERS	31.38	19.47	18.28
SPRINKLER FITTERS	33.82	12.81	10.60
TRUCK DRIVERS	32.64	21.06	22.74

CERTIFIED 06/29/2018

BY [Signature]

ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

**NOTE:** THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE 302 761 8200

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: DEARNG 2018-2 Seaford Armory Building Demolition, Sussex County

**PREVAILING WAGE DEBARMENT LIST**

The following contractors have been debarred for violations of the prevailing wage law 29Del.C. §6960 or other applicable State statutes.

Therefore, no public construction contract in this State shall be bid on, awarded to, or received by contractors and individuals on this list for a period of (3) three years from the date of the judgment or as deemed by a court of competent jurisdiction.

<b>Contractor</b>	<b>Address</b>	<b>Date of Debarment</b>
Mullen Brothers, Inc. and Daniel Mullen, individually	3375 Garnett Road, Boothwyn, PA 19060	Indefinite/ Civil Contempt
Site Work Safety Supplies, Inc. and Peter Coker, individually	4020 Seven Hickories Road Dover, DE 19904	1/12/2016
Green Granite and Jason Green, individually	604 Heatherbrooke Court Avondale, PA 19311	Indefinite/ Civil Contempt
Pro Image Landscaping, Inc. and Owner(s) individually	23 Commerce Street Wilmington, DE 19801 and/or 2 Cameo Road Claymont, DE 19703	Indefinite/19 <u>Del.C. §108 &amp; 10 Del.C. 542(c)</u>
Liberty Mechanical, LLC and Owner(s), individually	2032 Duncan Road Wilmington, DE 19801	Indefinite/ 19 <u>Del.C. 2374(f)</u>
Integrated Mechanical and Fire Systems Inc. and Allison Sheldon, individually	4601 Governor Printz Boulevard Wilmington, DE 19809	Indefinite/19 <u>Del.C. §108 &amp; 10 Del.C. 542(c)</u>

Updated: March 19, 2018

## GENERAL REQUIREMENTS

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**ARTICLE 1: GENERAL**

**1.1 CONTRACT DOCUMENTS**

1.1.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.1.2 Work including material purchases shall not begin until the Contractor is in receipt of a bonafide State of Delaware Purchase Order. Any work performed or material purchases prior to the issuance of the Purchase Order is done at the Contractor's own risk and cost.

**1.2 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS**

1.2.1 For Public Works Projects financed in whole or in part by state appropriation the Contractor agrees that during the performance of this contract:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

**ARTICLE 2: OWNER**

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SUPPLEMENTARY GENERAL CONDITIONS)

**ARTICLE 3: CONTRACTOR**

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

- 3.4 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions.
- 3.5 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.
- 3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.
- 3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.
- 3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.
- 3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.
- 3.11 STATE LICENSE AND TAX REQUIREMENTS
- 3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the Delaware Department of Finance within ten (10) days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of total value of such contract or contracts together with the names and addresses of the contracting parties."
- 3.12 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.
- 3.13 During the contract Work, the Contractor and each Subcontractor, shall implement an Employee Drug Testing Program in accordance with OMB Regulation 4104 - "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects". "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

**ARTICLE 4: ADMINISTRATION OF THE CONTRACT**

4.1 CONTRACT SURETY

4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing material or performing labor in the performance of the Contract, of all sums of money due the person for such labor and material. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the agency from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)

4.1.4 Invoking a Performance Bond – The agency may, when it considers that the interest of the State so require, cause judgement to be confessed upon the bond.

4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.

4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.

4.2 FAILURE TO COMPLY WITH CONTRACT

4.2.1 If any firm entering into a contract with the State, or Agency that neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.

4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the State, any Agency, officer and/or employee of the State, for and from

all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.

4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the State, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the State and all agencies, officers and employees thereof shall not be financially responsible for the consequences of work performed, pursuant to said contract.

#### 4.4 RIGHT TO AUDIT RECORDS

4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

### ARTICLE 5: SUBCONTRACTORS

#### 5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.
2. A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:
  - A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;
  - B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and
  - C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

- A. Is unqualified to perform the work required;
- B. Has failed to execute a timely reasonable Subcontract;
- C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or
- D. Is no longer engaged in such business.

5.1.5 Should a Bidder be awarded a contract, such successful Bidder shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.1.6 The Contractor may employ additional Subcontractors on the jobsite only after submitting a copy of the Subcontractor's Employee Drug Testing Program to the Owner for approval. A Contractor or Subcontractor shall not commence work until the Owner has concluded its review and determined that the submitted Employee Drug Testing Program complies with OMB Regulation 4104.

## 5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount\*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

\*one (1) percent of contract amount not to exceed \$10,000

## 5.3 ASBESTOS ABATEMENT

5.3.1 The selection of any Contractor to perform asbestos abatement for State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.

## 5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

5.5 CONTRACT PERFORMANCE

- 5.5.1 Any firm entering into a Public Works Contract that neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

**ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS**

- 6.1 The Owner reserves the right to simultaneously perform other construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other Projects at the same site.
- 6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

**ARTICLE 7: CHANGES IN THE WORK**

- 7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.
- 7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.
- 7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.
- 7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes prevailing wage rates plus a maximum multiplier of 1.35 times DPE. For example, if the prevailing wage rate is \$50/hour, the DPE would be \$67.50/hour (50 x 1.35).
- 7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.
- 7.3.3 In addition to the above, the General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven and one half percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No markup is permitted on the work of the subcontractors subcontractor. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

**ARTICLE 8: TIME**

8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.

8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.

8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.

#### 8.4 SUSPENSION AND DEBARMENT

8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."

8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record."

#### 8.5 RETAINAGE

8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.

8.5.2 This forfeiture of retainage also applies to the timely completion of the punchlist. A punchlist will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punchlist is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punchlist be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

### ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made upon AIA Document G702. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage may become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

9.2 PARTIAL PAYMENTS

9.2.1 Any public works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

9.4 FINAL PAYMENT

9.4.1 Final payment, including the five percent (5%) retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):

9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,

9.4.1.2 An acceptable RELEASE OF LIENS,

9.4.1.3 Copies of all applicable warranties,

9.4.1.4 As-built drawings,

9.4.1.5 Operations and Maintenance Manuals,

9.4.1.6 Instruction Manuals,

9.4.1.7 Consent of Surety to final payment.

9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

**ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY**

10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.

10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS)

provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

**ARTICLE 11: INSURANCE AND BONDS**

11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.

11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.

11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.

11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.

11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.

11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.

11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000 \$1,000,000 \$1,000,000	for each person for each occurrence aggregate
Property Damage	\$500,000 \$1,000,000	for each occurrence aggregate

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000 \$1,000,000 \$1,000,000	for each person for each occurrence aggregate
Property Damage	\$500,000 \$500,000	for each occurrence aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	\$1,000,000 \$1,000,000	for each person for each occurrence
Property Damage	\$500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

11.7.5 Workmen's Compensation (including Employer's Liability):

11.7.5.1 Minimum Limit on employer's liability to be as required by law.

11.7.5.2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

11.7.7 Social Security Liability

11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.

11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

**ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special

warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.

- 12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

#### **ARTICLE 13: MISCELLANEOUS PROVISIONS**

##### **13.1 CUTTING AND PATCHING**

- 13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

##### **13.2 DIMENSIONS**

- 13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

##### **13.3 LABORATORY TESTS**

- 13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.

- 13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

##### **13.4 ARCHAEOLOGICAL EVIDENCE**

- 13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities of the State Historic Preservation Office and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation by the Division of Historical and Cultural Affairs.

##### **13.5 GLASS REPLACEMENT AND CLEANING**

- 13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

##### **13.6 WARRANTY**

- 13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall remedy, at his own

expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

**ARTICLE 14: TERMINATION OF CONTRACT**

- 14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.
- 14.2 "If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement."

**END OF GENERAL REQUIREMENTS**

**EMPLOYEE DRUG TESTING REPORT FORM**

**Period Ending:** \_\_\_\_\_

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds maintain testing data that includes but is not limited to the data elements below.

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Contractor/Subcontractor Name: \_\_\_\_\_

Contractor/Subcontractor Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Number of employees who worked on the jobsite during the report period: \_\_\_\_\_

Number of employees subject to random testing during the report period: \_\_\_\_\_

Number of Negative Results \_\_\_\_\_ Number of Positive Results \_\_\_\_\_

Action taken on employee(s) in response to a failed or positive random test:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

This form is not required to be submitted to the Owner. Included as a reference to show information required to be maintained by the Contractor. The Owner shall have the right to periodically audit all Contractor and Subcontractor test results at the Contractor's or Subcontractor's offices (or by other means to make the data available for inspection by the Owner).

**EMPLOYEE DRUG TESTING  
REPORT OF POSITIVE RESULTS**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Contractor/Subcontractor Name: \_\_\_\_\_

Contractor/Subcontractor Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of employee with positive test result: \_\_\_\_\_

Last 4 digits of employee SSN: \_\_\_\_\_

Date test results received: \_\_\_\_\_

Action taken on employee in response to a positive test result:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Authorized Representative of Contractor/Subcontractor: \_\_\_\_\_  
(typed or printed)

Authorized Representative of Contractor/Subcontractor: \_\_\_\_\_  
(signature)

Date: \_\_\_\_\_

**This form shall be sent by mail to the Owner within 24 hours of receipt of test results.**

**Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.**

**ARTICLE VIII – APPLICABLE LAWS AND REGULATIONS****Section 801. Applicable Law.**

This MCCA is incidental to implementation of a federal program. Accordingly, this MCCA shall be governed by and construed according to federal law as it may affect rights, remedies, and obligations of the United States.

**Section 802. Governing Regulations.**

To the extent not inconsistent with express terms of this MCCA, provisions of 32 CFR Part 33, Uniform Administrative Requirements for Grants and Cooperative Agreements, the DoD 3210.6R, DoD Grant and Agreement Regulations (4/13/98), OMB Circular A-87, and NGR 5-1/ANGI 63-101, which circular and regulations are hereby incorporated into this MCCA by reference as if fully set forth herein, shall govern this MCCA.

**Section 803. Officials Not to Benefit**

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit arising from it, in accordance with 41 U.S.C. 22.

**Section 804. Nondiscrimination.**

The State covenants and agrees that by signing this agreement or accepting funds under this agreement, the recipient assures that it will comply with applicable provision of the following, national policies prohibiting discrimination:

- a. On the basis of race, color, or national origin, in Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq.), as implemented by DOD regulations 32 CFR Part 195.
- b. On the basis of race, color, religion, sex, or national origin, in Executive Order 11246 [3 CFR, 1964-1965 Comp. p. 339], as implemented by Department of Labor regulations issued thereunder (41 CFR Part 60);
- c. On the basis of handicap, in Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794) as implemented by Department of Justice regulations at 28 CFR part 41 and DoD Regulations at 32 CFR Part 56; and,
- d. On the basis of Age, in the Age Discrimination Act of 1975 (42 U.S.C. § 6101 et seq.) as implemented by Department of Health and Human Services regulations at 45 CFR Part 90.

**Section 805. Lobbying.**

a. The State covenants and agrees that it will not expend any funds appropriated by Congress to pay any person for influencing or attempting to influence an officer or employee of any agency or a member of Congress in connection with any of the following covered federal actions: The awarding of any federal contract; the making of any federal grant; the making of any federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

b. New Restrictions on Lobbying, issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 23) to implement provisions of Section 319 of Public Law 102-121 (31 U.S.C. § 1352) is incorporated by reference and the State agrees to comply with provisions thereof, including amendments to the that may hereafter be issued.

**Section 806. Drug-Free Work Place.**

a. The State covenants and agrees that it will comply with provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. § 701 et seq.) and will maintain a drug-free workplace.

b. Government-Wide Requirements for Drug-Free Workplace (Grants), issued by the Office of Management and Budget and the Department of Defense (41 USC 702) to implement provisions of the Drug-Free Work Place Act of 1988, is incorporated by reference and the State covenants and agrees to comply with provisions thereof, including amendments that may hereafter be issued.

**Section 807. Environmental Standards.** (By signing this agreement or accepting funds under this agreement, the recipient assure that it will):

a. Comply with applicable provision of the Clean Air Act (42 U.S.C. § 7401, et seq) and Clean Water Act (33 USC 1251, et.seq.), as implemented by Executive Order 11738 [3 CFR, 1971-1975 comp., p.799] and Environmental Protection Agency (EPA) rules at 40 CFR Part 15. In accordance with the EPA rules, the recipient further agrees that it will:

- Not use any facility on the EPA's List of Violating Facilities in performing any award that is nonexempt under 40 CFR 15.5 (awards of less than \$100,000, and certain other awards, exempt from the EPA regulations), as long as the facility remains on the list.
- Notify the awarding agency if it intends to use a facility in performing this award that is on the List of Violating Facilities or that the recipient knows has been recommended to be placed on the List of Violating Facilities.

b. Identify to the awarding agency any impact this award may have on:

(1) The quality of the human environment, and provide help the agency may need to comply with the National Environmental Policy Act (NEPA, at 42 U.S.C 4321, et.seq.) and to prepare Environment Impact Statements or other required environmental documentation. In such cases, the recipient agrees to take no action that will have an adverse environmental impact (e.g., physical disturbance of a site such as breaking of ground) until the agency provides written notification of compliance with the environmental impact analysis process.

(2) Flood-prone areas, and provide help the agency may need to comply with the National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973 (42 U.S.C. 4001, et. Seq.), which require flood insurance, when available, for Federally assisted construction or acquisition in flood-prone areas.

(3) Coastal zones, and provide help the agency may need to comply with the Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.), concerning protection of U.S. coastal resources.

(4) Coastal barriers, and provide help the agency may need to comply with the Coastal Barriers Resource Act (16 U.S.C. 3501 et.seq.), concerning preservation of barrier resources.

(5) Any existing or proposed component of the National Wild and Scenic Rivers system, and provide help the agency may need to comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.).

(6) Underground sources of drinking water in areas that have an aquifer that is the sole or principal drinking water source, and provide help the agency may need to comply with the Safe Drinking Water Act (42 U.S.C 300h-3).

**Section 808. Preference for U.S. Flag Air Carriers.**

*(Any agreement under which international air travel may be supported by U.S. Government funds)*

Travel supported by U.S. Government funds under this agreement shall use U.S flag air carriers (air carriers holding certificates under 49U.S.C. 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981, amendment to Comptroller General Decision B138942.

**Section 809. Debarment and Suspension.**

a. The State shall not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549 "Debarment and Suspension".

b. Government-Wide Debarment and Suspension (Nonprocurement), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 25) to implement provisions of Executive Order 12549 "Debarment and Suspension," is incorporated by reference and the State covenants and agrees to comply with provisions thereof, including amendments that may hereafter be issued.

**Section 810. Buy American Act.**

The State covenants and agrees that it will not expend any funds appropriated by Congress without complying with The Buy American Act (41 U.S.C. 10). The Buy American Act gives preference to domestic end products and domestic construction material. In addition, the Memorandum of Understanding between the United States of America and the European Economic Community (EEC) on Government Procurement, and the North American Free Trade Agreement (NAFTA), provide that EEC and NAFTA end products and construction materials are exempted from application of the Buy American Act.

**Section 811. Relocation Assistance and Real Property Acquisition Policies.**

The State covenants and assures that it will comply with 49 CFR part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601 *et seq.*) and provides for fair and equitable treatment of persons displaced by Federally assisted programs or persons whose property is acquired as a result of such programs.

**Section 812. Copeland "Anti-Kickback" Act.** *(All contracts and subgrants for construction or repair)*

The State covenants and agrees that it will comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented in Department of Labor regulations (29 CFR Part 3). As applied to this MCCA, the Copeland "Anti-Kickback" Act makes it unlawful to induce, by force, intimidation, threat of procuring dismissal from employment, or otherwise, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment.

**Section 813. Contract Work Hours and Safety Standards Act.** *(Construction contracts awarded by grantees and subgrantees in excess of \$2,000, and in excess of \$2,500 for other contracts which involve the employment of mechanics and laborers)*

The State covenants and agrees that it will comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330), as supplemented by Department of Labor regulations (29 CFR Part 5). As applied to this MCCA, the Contract Work Hours and Safety Standards Act specifies that no laborer or mechanic doing any part of the work contemplated by this MCCA shall be required or permitted to work more than 40 hours in any work week unless paid for all additional hours at not less than 1 1/2 times the basic rate of pay.

**Section 814. Davis-Bacon Act.** Contractor to comply with State of Delaware prevailing wage requirements, pursuant to Delaware Code, Title 29, Section 6960  
~~DO NOT USE THIS CLAUSE UNLESS AUTHORIZED BY NGB ARI.~~

~~The State covenants and agrees that it will comply with the Davis-Bacon (40 U.S.C. 276 a to a-7) as supplemented by U.S. Department of Labor regulations (29 CFR Part 5). (Construction contracts in excess of \$2,000 awarded by grantees and subgrantees when required by Federal grant program legislation). All rulings and interpretations of the Davis-Bacon Act contained in 29 CFR Part 5 are incorporated by reference in this MCCA. As applied to this MCCA, the Davis-Bacon Act (40 U.S.C. 276a-276a-7) provides that contracts in excess of \$2,000 to which the Federal Government provides assistance funding for construction, alteration, or repair (including painting and decorating) of public buildings or public works within the United States, shall contain a provision that no laborer or mechanic employed directly upon the site of the work shall receive less than the prevailing wage rates as determined by the U.S. Secretary of Labor.~~

**Section 815. National Historic Preservation.** *(Any construction, acquisition, modernization, or other activity that may impact a historic property.)*

The State covenants and agrees to identify to the awarding agency any property listed or eligible for listing on the National Register of Historic Places that will be affected by this award, and to provide any help the awarding agency may need, with respect to this award, to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470, *et seq.*), as implemented by the Advisory Council on Historic Preservation regulations at 36 CFR Part 800 and Executive Order 11593 (3 CFR, 1971-1975 Comp., p. 559).

*(36 CFR Part 800 requires Grants Officers to get comments from the Advisory Council on Historic Preservation before proceeding with Federally assisted projects that may affect properties listed on or eligible for listing on the National Register of Historic Places.)*

**Section 816. Hatch Act.**

The State covenants and agrees to comply with the Hatch Act (5 U.S.C. 1501 - 1508 and 7324 - 7326), as implemented by the Office of Personnel Management at 5 CFR Part 151, which limits political activity of employees or officers of State or local governments whose employment is connected to an activity financed in whole or part with Federal funds.

**Section 817. Equal Employment Opportunity.** *(All construction contracts awarded in excess of \$10,000 by grantees and their contractors or subgrantees.)*

The State covenants and agrees to comply with Executive Order 11246 of September 24, 1965 entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967 and as supplemented in Department of Labor regulations (41 CFR Chapter 60).

**Section 818. Cargo Preference.** *(Any agreement under which international air travel may be supported by U.S. Government funds.)*

The State covenants and agrees that it will comply with the Cargo Preference Act of 1954 (46 USC 1241), as implemented by Department of Transportation regulations at 46 CFR 381.7, which require that at least 50 percent of equipment, materials or commodities procured or otherwise obtained with U.S. Government funds under this Grant, and which may be transported by ocean vessel, shall be transported on privately owned U.S. flag commercial vessels, if available.

**Section 819. Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects.**

The State covenants and agrees that it will comply with Executive Order 13202 of February 17, 2001, Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects, as amended on April 6, 2001.

NOT FOR BIDDING

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

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

1.2 PROJECT INFORMATION

A. Project Identification: DEARNG Seaford Armory.

1. Project Location: 23440 Ross Station Road, Sussex County, DE.

B. Owner: Delaware Army National Guard, 1 Vavala Way, New Castle, DE 19720

1. Owner's Representative: Mr. Marc A. Orndorff, Delaware Army National Guard, 1 Vavala Way, New Castle, DE 19720; 302.326.7126

C. Engineer: Duffield Associates, 5400 Limestone Road, Wilmington, DE 19808, Phone: 302-239-6634

1.3 WORK COVERED BY CONTRACT DOCUMENTS

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

1. Asbestos abatement and demolition of an existing one-story building and foundation with a footprint of approximately 13,000 square feet, one-story shed building and foundation covering a footing print of approximately 175 square feet, adjacent truck wash rack and associated storm drain system. All utility connections to the building are to be disconnected and removed or abandoned. Bituminous concrete pavement to be constructed to replace the demolished buildings.

B. Type of Contract.

1. Project will be constructed under a single contract.

#### 1.4 PHASED CONSTRUCTION

- A. Before commencing Work, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates for Work.

#### 1.5 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to areas within the Limits of Disturbance (LOD) indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Limits: Confine construction operations to the proposed demolition of existing buildings, structures, pavement and existing fence, and proposed fence and pavement areas.
  - 2. Driveways, Walkways and Entrances: Keep driveways, parking areas and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

#### 1.6 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and adjacent building and storage lots during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  - 2. Notify Owner and Engineer not less than 7 days in advance of activities that will affect Owner's operations.

#### 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, Monday through Friday, unless otherwise indicated.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner and Engineer not less than 7 days in advance of proposed utility interruptions.
  2. Obtain Owner's or Engineer's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
1. Notify Owner and Engineer not less than 7 days in advance of proposed disruptive operations.
  2. Obtain Owner's or Engineer's written permission before proceeding with disruptive operations.
- E. Controlled Substances: Use of tobacco products and other controlled substances on site is not permitted.

#### 1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
  3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

END OF SECTION 011000

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 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.

1.2 DEFINITIONS

- A. Unit price is 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 after written authorization by the Engineer or Owner.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, 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.

END OF SECTION 012200

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. Certificates and qualification data, where applicable or requested.
    - g. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
    - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.

- j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within seven days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

#### 1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

### PART 2 - PRODUCTS

#### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
  1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Requested substitution provides sustainable design characteristics that specified product provided
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.



SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 MINOR CHANGES IN THE WORK

- A. Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.3 PROPOSAL REQUESTS

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

1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
2. Within seven days after receipt of Proposal Request, 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 acceptable to Engineer.

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

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. 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.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.
5. 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.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use form acceptable to Engineer.

#### 1.4 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. 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.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on AIA Document G701

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Engineer may issue a Work Change Directive on AIA Document G714. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Work 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 Work Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
  - 2. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
  - 3. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 4. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
  - 5. "DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS"

1.2 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 other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Engineer at earliest possible date but no later than twenty days after receiving Notice to Proceed.
  - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values.
  - 1. Identification: Include the following Project identification on the schedule of values:
    - a. Project name and location.
    - b. Name of Engineer.
    - c. Engineer's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703 and "DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS"
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
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.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. 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.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

### 1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: The period covered by each Application for Payment is one month.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application for Payment Forms: Use forms acceptable to Owner and Engineer for Applications for Payment. Sample copies are included in Project Manual.
- F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
  1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

- G. Transmittal: Submit one signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt. 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.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. LEED submittal for project materials cost data.
  4. Contractor's construction schedule (preliminary if not final).
  5. LEED action plans.
  6. Schedule of unit prices.
  7. Submittal schedule (preliminary if not final).
  8. List of Contractor's staff assignments.
  9. List of Contractor's principal consultants.
  10. Copies of building permits.
  11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  12. Initial progress report.
  13. Report of preconstruction conference.
  14. Certificates of insurance and insurance policies.
- J. Application for Payment at Substantial Completion: After Engineer 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 Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. 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. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."

5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707-1994, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. When applicable, final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. When applicable, final liquidated damages settlement statement.

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
1. Coordination drawings.
  2. Requests for Information (RFIs).
  3. Project Web site.
  4. Project meetings.
- B. Related Requirements:
1. "DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS"

1.2 DEFINITIONS

- A. RFI: Request from Owner, Engineer, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 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, and telephone number 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.

1.4 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. If requested, 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.
- C. 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.

#### 1.5 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
  - 1. Engineer will return RFIs submitted to Engineer by other entities controlled by Contractor with no response.
  - 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 Engineer
  - 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 solution(s) 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.
- C. RFI Forms: Forms acceptable to Engineer.
- D. Engineer's Action: Engineer will review each RFI, determine action required, and respond. Allow seven working days for Engineer's response for each RFI. RFIs received by Engineer 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
  - a. Requests for approval of submittals.
  - b. Requests for approval of substitutions.
  - c. Requests for coordination information already indicated in the Contract Documents.
  - d. Requests for adjustments in the Contract Time or the Contract Sum.
  - e. Requests for interpretation of Engineer's actions on submittals.
  - f. Incomplete RFIs or inaccurately prepared RFIs.
2. Engineer's action may include a request for additional information, in which case Engineer's time for response will date from time of receipt of additional information.
3. Engineer'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 Engineer in writing within five 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 during project closeout. Include the following:
  1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Engineer
  4. RFI number including RFIs that were dropped and not submitted.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Engineer's response was received.
- F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within five days if Contractor disagrees with response.
  1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

#### 1.6 PROJECT MEETINGS

- A. General: The Owner's Engineer 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 Engineer of scheduled meeting dates and times.
  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 Contractor, within three days of the meeting.

- B. Preconstruction Conference: The Owner's Engineer will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Engineer, 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. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Procedures for processing field decisions and Change Orders.
    - f. Procedures for RFIs.
    - g. Procedures for testing and inspecting.
    - h. Procedures for processing Applications for Payment.
    - i. Distribution of the Contract Documents.
    - j. Submittal procedures.
    - k. Preparation of record documents.
    - l. Use of the premises
    - m. Work restrictions.
    - n. Working hours.
    - o. Owner's occupancy requirements.
    - p. Responsibility for temporary facilities and controls.
    - q. Procedures for moisture and mold control.
    - r. Procedures for disruptions and shutdowns.
    - s. Construction waste management and recycling.
    - t. Parking availability.
    - u. Office, work, and storage areas.
    - v. Equipment deliveries and priorities.
    - w. First aid.
    - x. Security.
    - y. Progress cleaning.
  3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Progress Meetings: The Owner's Engineer will schedule and conduct progress meetings at two-week intervals.
1. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties

involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 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) Status of submittals.
  - 4) Deliveries.
  - 5) Off-site fabrication.
  - 6) Access.
  - 7) Site utilization.
  - 8) Temporary facilities and controls.
  - 9) Progress cleaning.
  - 10) Quality and work standards.
  - 11) Status of correction of deficient items.
  - 12) Field observations.
  - 13) Status of RFIs.
  - 14) Status of proposal requests.
  - 15) Pending changes.
  - 16) Status of Change Orders.
  - 17) Pending claims and disputes.
  - 18) Documentation of information for payment requests.
3. 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.

END OF SECTION 013100

## SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Contractor's construction schedule.
  2. Construction schedule updating reports.
  3. Daily construction reports.
  4. Site condition reports.
- B. Related Requirements:
1. Section 011200 "Multiple Contract Summary" for preparing a combined Contractor's construction schedule.

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

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. Working electronic copy of schedule file, where indicated.
  2. PDF electronic file.

- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. Construction Schedule Updating Reports: Submit with Applications for Payment.
- E. Daily Construction Reports: Submit at monthly intervals.
- F. Site Condition Reports: Submit at time of discovery of differing conditions.

#### 1.4 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from entities involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Engineer.
  - 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.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  - 4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.

5. Punch List and Final Completion: Include not more than 14 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
  1. Phasing: Arrange list of activities on schedule by phase.
  2. Work under More Than One Contract: Include a separate activity for each contract.
  3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  4. 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.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Environmental control.
  5. Work Stages: Indicate important stages of construction for each major portion of the Work.
  6. Other Constraints: DEARNG Activities restricting access to the site.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion
- E. 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 Contract Time.
- F. 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.
- G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 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.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Work Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

- B. 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.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

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

END OF SECTION 013200

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.

#### 1.2 DEFINITIONS

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

#### 1.3 ACTION SUBMITTALS

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

#### 1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Engineer's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals.
  - 1. Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    - a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Contractor shall execute a data licensing agreement prepared by the Engineer.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  1. Initial Review: Allow seven days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow seven days for review of each resubmittal.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
  1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 6 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Engineer.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a dash and then a sequential number (e.g., 061000-01). Resubmittals shall include an "R" after another dash (e.g., 061000-01-R1).
    - j. Number and title of appropriate Specification Section.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Other necessary identification.
  4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Names of subcontractor, manufacturer, and supplier.
    - h. Category and type of submittal.
    - i. Submittal purpose and description.
    - j. Specification Section number and title.
    - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - l. Drawing number and detail references, as appropriate.
    - m. Location(s) where product is to be installed, as appropriate.
    - n. Related physical samples submitted directly.
    - o. Indication of full or partial submittal.
    - p. Transmittal number numbered consecutively.
    - q. Submittal and transmittal distribution record.
    - r. Other necessary identification.
    - s. Remarks.
  5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
    - a. Project name.
    - b. Number and title of appropriate Specification Section.
    - c. Manufacturer name.
    - d. Product name.
- F. Options: Identify options requiring selection by Engineer.
- G. Deviations: Identify deviations from the Contract Documents on submittals.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.
- I. 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.

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

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

#### A. General Submittal Procedure Requirements:

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

#### B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

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

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

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
  - a. Identification of products.

- b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. 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 30 by 42 inches.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit one sets of Samples. Engineer will mark up and retain one returned Sample set as a project record sample.]
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Submit product schedule in the following format:
    - a. PDF electronic file.
- F. Coordination Drawings Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.
- L. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- M. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- N. 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.
- O. 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.
- P. Schedule of Tests and Inspections: Comply with requirements specified in Section 014000 "Quality Requirements."
- Q. 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.
- R. 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.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate [action.] [action, as follows:]
  - 1. No Exception Taken
  - 2. Make Correction As Noted
  - 3. Rejected
  - 4. Revise and Submit
  - 5. Submit Specified Item
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting 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. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 2. Requirements for Contractor to provide quality-assurance and -control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 3. Specific test and inspection requirements are not specified in this Section.

1.2 DEFINITIONS

- A. 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.
- B. 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. Services do not include contract enforcement activities performed by Engineer.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, 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. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
- D. 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.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. 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, 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).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

### 1.3 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards 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 Engineer for a decision 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 Engineer for a decision before proceeding.

### 1.4 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Engineer.
  - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Engineer.
- B. 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.

## 1.5 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, and telephone number 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.
  7. Identification of product and Specification Section.
  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 inspecting.
  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 Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Owner's records, 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.

## 1.6 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.
- 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, 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. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's 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.
- 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.
  2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

## 1.7 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 inspecting they are engaged to perform.
  2. 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 required to verify that the Work complies with requirements, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  5. 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 manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies 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 inspecting. 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 inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

## 1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Engineer and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Engineer with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.
  7. Requirements specified in the set of specifications titled "Specifications for Asbestos Abatement, Former Seaford Armory Bldg., prepared by Harvard Environmental, Inc., dated May 23, 2018.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: The Owner's qualified testing agency will prepare and distribute a record of tests and inspections that includes the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. 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 Engineer's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, 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.
- 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 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.

1.2 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 to use temporary services and facilities without cost, including, but not limited to Engineer, testing agencies, and authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.4 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.

1.5 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: Reference Project Drawings

### 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
  - 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.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers as directed by authorities having jurisdiction and the Owner.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
  1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
  1. Identification Signs: Provide Project identification signs as indicated on Drawings.
  2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
    - a. Provide temporary, directional signs for construction personnel and visitors.
  3. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations.
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 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.
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to Project Drawings.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Site Enclosure Fence: Before construction operations begin furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
  1. Extent of Fence: As indicated on Project Drawings.
  2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. 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. 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 01749 - CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes: Administrative and procedural requirements for construction waste management activities.

1.2 DEFINITIONS

- A. Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
- B. Salvage: Recovery of materials for on-site reuse, sale or donation to a third party.
- C. Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Crushing or grinding of concrete for use as sub-base material. Chipping of land clearing debris for use as mulch.
- D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.
- E. Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.
- F. Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.
- G. Approved Recycling Facility: Any of the following:
1. A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
  2. Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover recyclable materials.

1.3 SUBMITTALS

- A. Contractor shall develop a Waste Management Plan: Submit 3 copies of plan within 14 days of date established for the **Notice to Proceed**.
- B. Contractor shall provide Waste Management Report: Concurrent with each Application for Payment, submit **3** copies of report.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Divert a minimum of **75%** CDL waste, by weight, from the landfill by one, or a combination of the following activities:
1. Salvage
  2. Reuse
  3. Source-Separated CDL Recycling
  4. Co-mingled CDL Recycling
- B. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:
1. Acoustical ceiling tiles
  2. Asphalt
  3. Asphalt shingles
  4. Cardboard packaging
  5. Carpet and carpet pad
  6. Concrete
  7. Drywall
  8. Fluorescent lights and ballasts
  9. Land clearing debris (vegetation, stumpage, dirt)
  10. Metals
  11. Paint (through hazardous waste outlets)
  12. Wood
  13. Plastic film (sheeting, shrink wrap, packaging)
  14. Window glass
  15. Wood
  16. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

#### 1.4 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED Accredited Professional, certified by the USGBC as waste management coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Conduct construction waste management activities in accordance with hauling and disposal regulations of all authorities having jurisdiction and all other applicable laws and ordinances.
- D. Preconstruction Conference: Schedule and conduct meeting at Project site prior to construction activities.
1. Attendees: Inform the following individuals, whose presence is required, of date and time of meeting.
    - a. Owner
    - b. Architect
    - c. Contractor's superintendent
    - d. Major subcontractors
    - e. Waste Management Coordinator
    - f. Other concerned parties

2. Agenda Items: Review methods and procedures related to waste management including, but not limited to, the following:
    - a. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
    - b. Review requirements for documenting quantities of each type of waste and its disposition.
    - c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
    - d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
    - e. Review waste management requirements for each trade.
  3. Minutes: Record discussion. Distribute meeting minutes to all participants.  
Note: If there is a Project Architect, they will perform this role.
- 1.5 WASTE MANAGEMENT PLAN – Contactor shall develop and document the following:
- A. Develop a plan to meet the requirements listed in this section at a minimum. Plan shall consist of waste identification, waste reduction plan and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight throughout the plan.
  - B. Indicate anticipated types and quantities of demolition, site-cleaning and construction waste generated by the project. List all assumptions made for the quantities estimates.
  - C. List each type of waste and whether it will be salvaged, recycled, or disposed of in an landfill. The plan should included the following information:
    1. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.
    2. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:
      - a. Contracting with a deconstruction specialist to salvage materials generated,
      - b. Selective salvage as part of demolition contractor's work,
      - c. Reuse of materials on-site or sale or donation to a third party.
    3. Proposed methods for salvage, reuse, recycling and disposal during construction including, but not limited to, one or more of the following:
      - a. Requiring subcontractors to take their CDL waste to a recycling facility;
      - b. Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility;
      - c. Processing and reusing materials on-site;
      - d. Self-hauling to a recycling or material recovery facility.
    4. Name of recycling or material recovery facility receiving the CDL wastes.
    5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
  2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
  3. Total cost of disposal (with no waste management).
  4. Revenue from salvaged materials.
  5. Revenue from recycled materials.
  6. Savings in hauling and tipping fees by donating materials.
  7. Savings in hauling and tipping fees that are avoided.
  8. Handling and transportation costs. Including cost of collection containers for each type of waste.
  9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT, GENERAL

- A. Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
- B. The collection containers for recyclable CDL waste must contain no more than 10% non-recyclable material, by volume.
- C. Provide containers for CDL waste that is disposed in a landfill clearly labeled as such.
- D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.
- E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.
- F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.2 SOURCE SEPARATION

- A. General: Contractor shall separate recyclable materials from CDL waste to the maximum extent possible.

Separate recyclable materials by type.

1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water and to minimize pest attraction. Cover to prevent windblown dust.

3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from weather.

### 3.3 CO-MINGLED RECYCLING

- A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

### REMOVAL OF CONSTRUCTION WASTE MATERIALS

- A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
- B. Transport CDL waste materials off Owner's property and legally dispose of them.
- C. Burning of CDL waste is not permitted.

END OF SECTION

<b>WASTE MANAGEMENT PROGRESS REPORT</b>				
<b>MATERIAL CATEGORY</b>	<b>DISPOSED IN MUNICIPAL SOLID WASTE LANDFILL</b>	<b>DIVERTED FROM LANDFILL BY RECYCLING, SALVAGE OR REUSE</b>		
		Recycled	Salvaged	Reused
1. Acoustical Ceiling Tiles				
2. Asphalt				
3. Asphalt Shingles				
4. Cardboard Packaging				
5. Carpet and Carpet Pad				
6. Concrete				
7. Drywall				
8. Fluorescent Lights and Ballasts				
9. Land Clearing Debris (vegetation, stumpage, dirt)				
10. Metals				
11. Paint (through hazardous waste outlets)				
12. Wood				
13. Plastic Film (sheeting, shrink wrap, packaging)				
14. Window Glass				
15. Field Office Waste (office paper, aluminum cans, glass, plastic, and coffee cardboard)				
16. Other (insert description)				
17. Other (insert description)				
<b>Total (In Weight)</b>		<b>(TOTAL OF ALL ABOVE VALUES – IN WEIGHT)</b>		
		<b>Percentage of Waste Diverted</b>	<b>(TOTAL WASTE DIVIDED BY TOTAL DIVERTED)</b>	

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 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.

Related Requirements:

1. "DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS"
2. Delaware Department of Natural Resources and Environmental Control (DNREC) Erosion and Sediment Control Handbook.

1.2 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction, if required.
- B. Certificate of Insurance: For continuing coverage.
- C. Additional Documents Required in 008113 "General Requirements," Section 9.4 "Final Payment," including the following:
1. Contractor's Affidavit of Payment of Debts and Claims – AIA Document 706
  2. Contractor's Affidavit of Release of Liens – AIA Document 706A
  3. Letter of Guarantee and Warranty
  4. As-built Drawings
  5. Consent of Surety to Final Payment – AIA Document G707
  6. Contractor Punchlist Closeout Letter
  7. Vendor Contract List
  8. Certificate of Substantial Complete – AIA Document 704 (signed by Engineer)
  9. Engineer's Punchlist and Closeout Letter
  10. Contractor's Employee Drug Testing Report Form

#### 1.4 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 00 and 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, 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.
- 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. Make final changeover of permanent locks and deliver keys to Owner. 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, including touchup painting.
  5. Touch up 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, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.5 FINAL COMPLETION PROCEDURES

- A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures" and 008113 "General Requirements," Section 9.4 "Final Payment."
  2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed

and dated by Engineer. 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. Additional Documents Required in 008113 "General Requirements," Section 9.4 "Final Payment."

B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.6 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. Submit list of incomplete items in the following format:
  - a. PDF electronic file. Engineer will return annotated copy.

#### 1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

### 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 petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - g. Sweep concrete floors broom clean in unoccupied spaces.
    - h. Remove labels that are not permanent.
    - i. Leave Project clean and ready for occupancy.
  - 2. Stabilize site in accordance with Project Documents and Delaware Department of Natural Resources and Environmental Control (DNREC) Erosion and Sediment Control Handbook.

#### 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.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
  - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.

- E. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
  1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
  1. Restore damaged improvements to their original condition, as acceptable to Owner.

### 3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
  1. Refer to Delaware Department of Natural Resources and Environmental Control (DNREC) Erosion and Sediment Control Handbook.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### 3.3 TREE AND PLANT PROTECTION

- A. General: Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."

- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Engineer.

### 3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
  - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Engineer's written permission.
- C. Removal of underground utilities is included in earthwork sections and with applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security and utilities sections and Section 024116 "Structure Demolition"

### 3.5 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

### 3.6 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.
- C. See Section 017419 "Construction Waste Management and Disposal" for recycling and disposal of demolition waste.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Preparing subgrades for pavements.
  2. Excavating and backfilling for pavements.
  3. Base course for asphalt paving.

1.2 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation.
1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subgrade and hot-mix asphalt paving.
- C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
  2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- E. Fill: Soil materials used to raise existing grades.
- F. 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.
- G. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 QUALITY ASSURANCE

- A. Preexcavation Conference: Discuss earthwork and excavation during conference required in Section 024116 – Structure Demolition.

#### 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 erosion and sediment control and plant-protection measures specified in Section 311000 "Site Clearing" are in place.

### 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: Onsite soils free of organic material, topsoil, miscellaneous fill, debris, and rock fragments in excess of 3 inches in their largest dimension may be suitable as fill. If sufficient quantities of suitable on-site soils are not available for fill within the proposed pavement areas, imported borrow consisting of predominately granular soils conforming to the requirements of Delaware Department of Transportation Backfill (Type C) shall be utilized. AASHTO SP-57 stone could also be utilized as structural fill at locations, as recommended by the project engineer, and should be considered for localized, relatively deep fills.
- C. Unsatisfactory Soils: Soil Classification Groups OL, OH, and PT according to ASTM D 2487, or a combination of these groups.
  - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Base Course: Graded Aggregate, Type B, conforming to the most current version of the Delaware Department of Transportation Standard Specifications

### 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 remove building foundation and slabs, 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 SUBGRADE INSPECTION

- A. All fill should be placed on firm, dry, non-frozen subgrade. Following the demolition of the existing the building and foundations, and removal of debris, excavations should be reviewed by a qualified technician working under the supervision of a geotechnical engineer retained by the owner prior to the placement of structural fill. If these conditions are not encountered at the proposed foundation depth, unsuitable subgrade conditions should be undercut or, if acceptable to the project geotechnical engineer, the soils can be densified in place. Foundation undercut areas shall be backfilled with structural fill as recommended herein.
- B. Following backfilling of excavations with compacted fill, the exposed subgrade in the proposed pavement areas shall be proofrolled. The proofrolling shall be performed using a loaded triaxle dump truck or minimum 10-ton static roller in the presence of a qualified soils technician working under the supervision of a geotechnical engineer retained by the owner. Yielding, or otherwise unsuitable subgrade conditions encountered within the proposed pavement areas, should be undercut or, if acceptable to the project geotechnical engineer, the soils can be densified in place. Foundation undercut areas shall be backfilled with structural fill as recommended herein.
- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

### 3.4 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.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. Place and compact fill material in layers to required elevations as follows:
  1. Under grass and planted areas, use satisfactory soil material.
  2. Under pavements, use satisfactory soil material.

### 3.5 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.

### 3.6 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698
  1. Under pavements, recompact the existing subgrade and compact each layer of backfill or fill soil material at 95 percent.
  2. Under turf or unpaved areas, recompact the existing subgrade and compact each layer of backfill or fill soil material at 90 percent.

### 3.7 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations shown on Project Drawings.

### 3.8 BASE COURSES UNDER PAVEMENTS

- A. Place base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place base course under pavements as follows:
  1. Shape base course to required elevations and grades.
  2. Place base course that exceeds 8 inches (150 mm) in compacted thickness in layers of equal thickness.
  3. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D 698.

### 3.9 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. 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.

### 3.10 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.

### 3.11 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.

END OF SECTION 312000

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cold milling of existing asphalt pavement.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving.
4. Hot-mix asphalt overlay.
5. Asphalt curbs.

B. Related Requirements:

1. Section 312000 "Earth Moving" for subgrade preparation, fill material, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.
2. Delaware Department of Transportation (DelDOT) Standard Specifications for Road and Bridge Construction, August 2016, or most recent revision.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Discuss paving during conference required in Section 024116 – Structure Demolition.

1.3 ACTION SUBMITTALS

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

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by DelDOT
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of DelDOT for asphalt paving work.
1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag, in accordance with DelDOT Standards

- B. Fine Aggregate: ASTM D 1073 or AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof, in accordance with DeIDOT Standards
- C. Mineral Filler: ASTM D 242 or AASHTO M 17, rock or slag dust, hydraulic cement, or other inert material, in accordance with DeIDOT Standards

## 2.2 ASPHALT MATERIALS

- A. Asphalt Binder: PG 64-22
- B. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application, in accordance with DeIDOT Standards

## 2.3 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by the Delaware Dept. of Transportation and complying with the following requirements:
  - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
  - 2. Base Course: Delaware Dept. of Transportation Type B.
  - 3. Surface Course: Delaware Dept. of Transportation Type C.
  - 4. Cold Patch: Complying with Delaware Department of Transportation specifications

## PART 3 - EXECUTION

### 3.1 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades. See Section 312000 "Earthmoving."
- C. Tack Coat: Apply uniformly to surfaces of existing pavement in accordance with DeIDOT Standards.

### 3.2 PLACING HOT-MIX ASPHALT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
  - 1. Spread mix at temperatures specified by DeIDOT Standards.
  - 2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

### 3.3 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections in accordance with DeIDOT Standards. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

### 3.4 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
  - 1. Complete compaction before mix temperature cools to temperatures specified by DeIDOT Standards.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density – Surface Course: 92 percent of reference maximum theoretical voidless density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
  - 2. Average Density – Base Course: 90 percent of reference maximum theoretical voidless density according to ASTM D 2041, but not less than 88 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.5 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated by DeIDOT Standards.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the tolerances specified by DeIDOT.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Replace and compact hot-mix asphalt where core tests were taken.
- C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.7 WASTE HANDLING

- A. General: Handle asphalt-paving waste according to approved waste management plan required in Section 017419 "Construction Waste Management and Disposal."

END OF SECTION 321216

## SECTION 323113 - CHAIN LINK FENCES AND GATES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes chain-link fences and swing gates.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design chain-link fences and gates, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated, including construction details, material descriptions, attachments, dimensions of fence and gates, and hardware.

### PART 2 - PRODUCTS

#### 2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:
  - 1. Fabric Height: As indicated on Drawings, to match existing fence.
  - 2. Steel Wire Fabric: Wire with a diameter of 0.148 inch (9 Gauge)
    - a. Mesh Size: 2 inches
    - b. Aluminum-Coated Fabric: ASTM A 491, Type I, 0.40 oz./sq. ft.
  - 3. Selvage: Twisted and barbed top and knuckled bottom

#### 2.2 FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:
  - 1. Fence Height: As indicated on Drawings.
  - 2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

- a. Line Post: 4.0 inches in diameter
- b. End, Corner and Pull Post: 4.0 inches in diameter
3. Horizontal Framework Members: Rails complying with ASTM F 1043.
4. Brace Rails: Comply with ASTM F 1043.
5. Metallic Coating for Steel Framing:
  - a. Type A zinc coating.

## 2.3 TENSION WIRE

- A. Metallic-Coated Steel Wire: 0.177-inch diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:
  1. Type I, aluminum coated (aluminized).

## 2.4 SWING GATES

- A. General: Comply with ASTM F 900 for gate posts and single swing gate types.
  1. Gate Leaf Width: As indicated
  2. Gate Fabric Height: As indicated
- B. Pipe and Tubing:
  1. Zinc-Coated Steel: Comply with ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framing
  2. Aluminum: Comply with ASTM B 429/B 429M;
  3. Gate Posts: Round tubular steel
  4. Gate Frames and Bracing: Round tubular steel
- C. Frame Corner Construction: Welded
- D. Hardware:
  1. Hinges: 180-degree inward
  2. Latches permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
  3. Padlock and Chain: Provided by Owner.
  4. Closer: Manufacturer's standard

## 2.5 FITTINGS

- A. General: Comply with ASTM F 626.
- B. Barbed Wire Arms: Pressed steel with clips, slots, or other means for attaching strands of barbed wire integral with post cap for each post unless otherwise indicated, and as follows:
  1. Provide line posts with arms that accommodate top rail or tension wire.
  2. Type I, single slanted arm.
- C. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc.

## 2.6 BARBED WIRE

- A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch line wire with 0.080-inch diameter, four-point round barbs spaced not more than 5 inches o.c.

1. Aluminum Coating: Type A.

## 2.7 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Stake locations of fence lines, gates, and terminal posts. Indicate locations of utilities, , underground structures, benchmarks, and property monuments.
- D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.
- E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
  1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
  2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
    - a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
- G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.

- H. Line Posts: Space line posts uniformly as indicated on Drawings.
- I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Provide tensions wire as indicated
- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2 inches between finish grade or surface and bottom selvage unless otherwise indicated.
- K. Barbed Wire: Install barbed wire outward and uniformly spaced as indicated on Drawings. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.
- L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
- M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Permanent Seeding of disturbed areas.

1.2 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Surface Soil: Whatever soil is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.3 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Certification of grass seed.
  - 1. Certification of each seed mixture for turf grass sod.
- B. Product certificates.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

1.6 MAINTENANCE SERVICE

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than 60 days from the date of planting completion.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Grass Seed Mix:
  - a. Install seed mixes meeting the requirements of the Delaware Department of Natural Resources and Environmental Control.

### 2.2 MULCHES

- a. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley. Mulch must comply with the requirements of the Delaware Department of Natural Resources and Environmental Control.

## PART 3 - EXECUTION

### 3.1 TURF AREA PREPARATION

- A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - 1. Apply topsoil to a minimum depth of 4 inches or as specified on the drawings, whichever is greater.
- B. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting.

### 3.2 SEEDING

- A. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
  - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

### 3.3 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

- B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain height appropriate for species without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings.
- C. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

END OF SECTION 329200

RECEIVED

JUL 31 2018

FACILITIES MANAGEMENT



**SPECIFICATIONS FOR  
ASBESTOS ABATEMENT  
FORMER SEAFORD ARMORY BLDG.  
23440 ROSS STATION ROAD  
SEAFORD, DE**

DATED: 5-23-18  
Harvard Project Number: 19432

PREPARED FOR: Mr. William Davis  
*Delaware Army National Guard  
Biden Center Building  
250 Airport Road  
New Castle, Delaware 19720*

PREPARED BY: Harvard Environmental, Inc.  
*760 Pulaski Highway  
Bear, Delaware 19701*

APPROVED  
Facilities Management  
*Doyle Miller* 8/1/2018  
Doyle Miller Date

**HARVARD**  
**Environmental, Inc.**

"Safety First - Last - Always"

NOT FOR BIDDING



Delaware Army National Guard  
 23440 Ross Station Road  
 Seaford, DE 19973

Former Seaford Armory  
 Seaford, DE  
 Asbestos Abatement

**Delaware Army National Guard  
 Former Seaford Armory  
 Seaford, Delaware**

**Asbestos Abatement  
 Scope Specific Specifications**

Dated 5/23/18

Harvard Project # 19432

**SPECIFICATIONS APPROVALS**

Project Designer: *Mike Sanders* Date: 5/23/18  
 Certification Number: ACC-1117-10-005 Printed Name: Mike Sanders

**ENGINEERS STATEMENT**

The attached statement has been prepared to the best of my knowledge from the physical observations to the extent of engineering discipline and from the data supplied by the owner. It is the responsibility of the contractor to inspect all existing conditions prior to the commencement of the work and also to comply with all current Local, State, and Federal codes and Environmental regulations during the execution of the work to be performed in associated with this project.

Professional Engineer Signature: *Wesley B. Morrison* Date: 5/23/2018  
 Printed Name: Wesley B. Morrison

**FACILITIES MANAGEMENT APPROVALS**

This is to Certify That the State Of Delaware Facilities Management, has reviewed this specification and approves its use for the project listed above.

IAW DELAWARE CODE, TITLE 16 CHAPTER 78, PARAGRAPH 7805(1)  
 Signature: *Doyle Tiller* Date: 8/1/2018  
 Printed Name: Doyle Tiller  
 State of Delaware, Division of Facilities Management

**APPROVED  
 Facilities Management**  
*Doyle Tiller* 8/1/2018  
 Doyle Tiller Date



NOT FOR BIDDING



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## SECTION 01013 - SUMMARY OF THE WORK - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section and other bound materials within this Scope Specific document.
- B. All work associated with this project is to be performed in accordance with this Specification, dated May 23<sup>rd</sup>, 2018, as prepared by Harvard Environmental, Inc.
- C. Conflict between this 01013 document and the Specification Divisions may exist; if so, this Scope Specific Document shall take precedence.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of the removal, packaging, transportation and disposal, of designated asbestos materials as indicated within this Scope Specific Specification.
- B. This Work includes the performance of all supplemental Work indicated in the Specification which is required to accomplish the Project. These items may include; but not limited to the following:
  - (1) Construct 3-Stage Decon with Shower at the entrance to the full containments.
  - (2) Removal of asbestos containing materials utilizing industry standard hand tool removal methods. Refer to the page 14 'Schedule of asbestos containing materials' for the specific materials scheduled for abatement. The contract drawings 19432-1, 19432-2 and 1943-3 depict the locations of the specified materials.
  - (3) Boiler dismantlement will be required to effectively remove and decontaminate all boiler rib sections and internal components. **Demolition contractor is responsible for the disposal of the decontaminated metal at metal recyclable scrap.**
  - (4) PAPR respiratory protection shall be utilized during removal phases of the project.
  - (5) Disposal of asbestos waste in accordance with state & federal regulations.

***Any asbestos abatement related activities inclusive of mobilizing equipment and preparatory work that is covered under this contract will not commence until a certified Project Monitor (the Owner's Representative from a Certified Professional Service Firm) is on site. The Project monitor shall remain on site at all times during the project.***

- C. Location: Delaware Army National Guard - Former Seaford Armory Site  
23440 Ross Station Road, Seaford, DE 19973

Owner: Delaware Army National Guard



Contract Documents – Scope Specific 01013 dated May 23<sup>rd</sup>, 2018 as prepared by:

**Harvard Environmental, Inc.**

760 Pulaski Highway  
Bear, Delaware 19701

**1.3 GENERAL INCLUSIONS**

- A. Performance, payment and bid bonding are required by the State of Delaware and Delaware Army National Guard for General Contractor. General Contractor will subcontract the abatement portion of work.
- B. All work shall conform to contract specifications and shall be performed in strict compliance with all applicable federal, state and local regulations. Regulatory compliance is the sole responsibility of the Contractor.
- C. The Contractor shall obtain any and all permits which may be required to complete this project.
- D. The Contractor shall be responsible for notifying all external organizations which require notification; these notifications may include but are not limited to, EPA Regional Office, Governing State Bodies, Local Municipalities, Emergency Personnel, and Waste Disposal Site.
- E. Copies of all notifications, on their official forms, shall be provided to the Owner's Representative prior to project commencement. Any revisions required to the notifications are the sole responsibility of the Contractor. Copies shall be provided to the Owner's Representative immediately upon submittal.
- F. The Contractor shall be responsible for all damages incurred from project-related activities and/or personnel assigned to the project. This aspect of accountability includes interior and exterior damages.
- G. During the time which areas are considered regulated, all personnel entering the area to perform any type of support services shall adhere to the safety procedures and training requirements required for the entry.
- H. The work area and job site shall be restricted to designated contract personnel and authorized visitors. All visitors will require site authorization, safety health and environmental orientation, and clearance from the Owner or the Owner's Representative prior to entering the site.
- I. A copy of this "Scope Specific Documents" and Specifications shall be in the possession of the Contractor's assigned Supervision at all times during the execution of this project.

**1.4 COMPLIANCE WITH LAWS**

- A. Contractor shall be responsible to comply with all aspects of the scope and specifications. All work shall be performed in strict accordance with applicable local, state, and federal regulations governing materials and activities in address in the specifications.
- B. Contractor shall notify the Owner and the Owner's Representative promptly, in writing, if any scope or specifications are at variance with any laws or regulations. Contractor shall bear any incurred cost in the event of its failure to give such notice.



### 1.5 ASBESTOS-CONTAINING MATERIALS:

- A. The Work of this contract involves activities that will disturb asbestos-containing materials (ACM). The location and type of ACM known to be present at the worksite is set forth in the drawings. If any other ACM or presumed asbestos containing material (PACM) is found, notify the owner, other employers and employees about the location and quantity of the ACM or PACM within 24 hours of the discovery.

### 1.6 ASBESTOS HEALTH RISK:

- A. The disturbance or dislocation of ACM may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health risk to workers and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the risk and of proper work procedures which must be followed.
- B. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified ACM, take appropriate continuous measures as necessary to protect all building occupants from the risk of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

### 1.7 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have limited use of facility.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
  - 1. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of the Existing Building: Secure the existing building during interior abatement work. Weather tight conditions will only be required during that construction period. Exceptions to this requirement will be when the corrugated asbestos roof and windows are removed from the building.
  - 1. Smoking: **Smoking or open fires will not be permitted within the building or the grounds.**
  - 2. Toilet Facilities
    - a. Owner will not be required to permit use of nearby onsite sanitation facilities for the Contractor's use. Temporary toilets will be provided by the General contractor for all contractor and subcontractor use.



## 1.8 FUTURE WORK

- A. Future Contract: It is the intention of demolition contractor (GC) to perform building demolition upon completion of the work. This effort is expected to commence shortly after completion of the abatement operations.

## 1.9 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: The Owner has awarded a separate contract for performance of certain construction operations at the site. Those operations will be conducted simultaneously with work under this Contract. That Contract includes the following:
  - 1. Contract: A separate contract has been awarded to Harvard Environmental, Inc. to act as the Owner's Representative in support of on and off-site project related work as indicated in the project specifications.

## 1.10 PROJECT SCOPE SPECIFIC ISSUES AND COORDINATION

### A. WORK SCHEDULES

- 1. All work associated with this project shall be during 1<sup>st</sup> shifts. The anticipated start date to the schedule is expected to be during the fall of 2018.
- 2. Working on the site beyond the hours indicated above will require written approval by the Owner or the Owner's Representative.

### B. WORK SEQUENCE

- 1. The Work will be conducted under a one mobilization by the Contractor. Phasing of the work shall be performed consistent with the schedules provided below.
  - (1) Phase I
    - a. Electrical Services Isolation; Gas Purging; Boiler Draining
  - (2) Phase II
    - a. Fabrication of containment systems
  - (3) Phase III
    - a. Interior Asbestos Removal and Decontamination
    - b. Exterior Roof and Window Removal
  - (4) Phase IV
    - a. Demobilization and transportation of all waste to DSWA cherry Island Landfill

### C. EXISTING FUEL & ENERGY SYSTEMS

- 1. Natural Gas that services the boilers is currently active within the work area. The Owner is responsible for all disconnects, purging and removal of the systems prior to the commencement of the contract work.

### D. EXISTING ELECTRICAL SYSTEMS

- 1. Electrical systems are currently inactive in the facility.



**E. TEMPORARY ELECTRICAL SYSTEMS**

1. Temporary electric is the responsibility of the contractor. Gas-powered generators shall be used and sufficient to provide enough power to support all containment systems under HEPA Air Filtration Devices.

**F. EXISTING WATER FACILITIES**

1. Water services to support the facility are currently inactive.

**G. TEMPORARY WATER FACILITIES**

1. Contractor shall provide a temporary cold-water source in support of the project. This source can be a filled 55 gallon drum with pump for distribution into a decon shower and work area for material wetting purposes.
2. The Contractor shall be responsible for providing temporary hot water heater for decon shower source.

**H. SPRINKLER/FIRE DETECTION SYSTEM CONSIDERATIONS**

1. There are no operating sprinkler system/fire detection systems within the structure.

**I. FURNISHINGS AND ITEMS**

1. The Owner will be responsible for relocating all furnishings and objects from the floor surfaces to be abated prior to the contractor's mobilization period.

**J. ASBESTOS REMOVAL AND CONTROL MEASURES**

1. The work performed within the full containment systems shall utilize an attached three stage decon and a separate waste loadout facility.
2. Fabrication of the facilities shall be performed consistent with the Specification and industry standards.
3. Air filtration device exhaust shall be directed outside the confines of the facility. Negative pressure differential shall be maintained throughout the project at or below -0.20 inches of water.
4. Work under the contact shall include the complete removal and disposal of the materials identified on the drawing.
5. Fire brick may be present and is presumed to be asbestos containing at the base of the boiler. Disposal of the brick shall be consistent with asbestos waste disposal.
6. All cutting or welding activities will require a "fire watch" to be present. The fire watch shall be trained in how to operate the type fire extinguisher that is present at the welding/cutting site. Each fire watch shall have their own fire extinguishers rated for the job being performed. A charged water hose shall also be required in immediate areas of all work.
7. All cutting and welding activities shall end at least 1 hour prior to the end of non-monitored work. The fire watch shall stay at the welding site for the above



mentioned 1 hour to ensure that no fires have started and that all hot slag and other potential ignition sources have cooled down.

8. The contractor is responsible for decontaminating metal waste generated from the boiler demolition, and leave for the GC to dispose of at a later date.
9. The contractor is responsible for providing high reach equipment and personnel safety tie-off equipment to support the roof removal.
10. Upon completion of asbestos removal of the interior areas of work, a visual inspection shall be performed by the Owner's Representative followed by PCM (Phase Contrast Microscopy) clearance testing. In the event of the failed clearance, the contractor shall re-clean and re-encapsulate the entire work area. The Owner's Representative shall retest the work area once a sufficient drying of the encapsulant is evident.
11. Upon completion of asbestos removal of the exterior areas of work, (roof and windows) a visual inspection only shall be performed by the Owner's Representative.
12. Teardown of interior containment after achieving clearance; De-mobilization from the site.

#### 1.11 OTHER PROJECT CONSIDERATIONS

##### A. PERSONAL PROTECTIVE EQUIPMENT

1. Respiratory for removal of all ACM will be PAPR.
2. Contractor shall don Tyvek suits or equivalent materials during all phases of the project.
3. Contractor's personnel and Sub Contractors shall wear hard hats, safety toe work shoes, and safety glasses with side shields at all times while on site.
4. Safety glasses, including all components (frames, lenses, and side shields) shall conform to ANSI Standard Z87.1. Slip-on, flimsy plastic side shields are not permitted.
5. Leather gloves are required when doing work in which cuts and punctures may occur. During instances of handling knives and razors, composite gloves which incorporate cut resistant fibers, shall be worn opposite the cutting hand.
6. All Personal Protective Equipment shall be provided by the Contractor at no cost to the Owner or the Owner's Representative.
7. Non-Compliance with the site requirements regarding use of PPE shall warrant removal of personnel from the premises.

##### B. SMOKING & TOBACCO USE

1. Smoking or use of tobacco products by Contractor employees on State of Delaware/ DE Army National Guard grounds shall be considered cause to require the Contractor to remove that employee from the site.



**1.12 AIR MONITORING BY THE OWNER:**

- A. The Owner has contracted for air monitoring. Air monitoring will be conducted both outside and inside of the work area while work is in progress, and for clearance sampling prior to enclosure removal.
  - 1. Outside of the Work Area: The Owner's air monitoring firm will sample air outside of the work area to detect faults in the work area isolation such as:
    - a. Contamination of the building outside of the work area with airborne asbestos fibers,
    - b. Failure of filtration or rupture in the differential pressure system,
  - 2. Inside the Work Area: The Owner's air monitoring firm will monitor airborne fiber counts in the Work Area. The purpose of this air monitoring is to detect airborne asbestos concentrations which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.
- B. Work area clearance: Clearance air sampling by the Owner's air monitor at the completion of asbestos abatement work shall be performed. PCM (Phase Contrast Microscopy) shall be the criteria for the areas. Clearance testing shall be conducted in accordance with NIOSH 7400 method.
- C. Air monitoring required by OSHA is work of the Contractor and is not covered in this section.

**1.13 SCHEDULE OF AIR SAMPLES BY OWNER:**

- A. Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:
  - 1. PCM: 0.8 micrometer mixed cellulose ester.
- B. Number and Volume of Samples: The number and volume of air samples given in the schedules is approximate. The exact number and volume of samples collected by the Owner may vary depending upon job conditions and the analytical method used.
- C. Sample Volume and Sensitivity:
  - 1. PCM: The sample volumes collected by the Owner's air monitor will be determined by the following formula:

$$Volume = \frac{\left( \frac{Number\ of\ Fibers}{Area\ of\ 100\ fields} \right) \times Total\ Filter\ Area}{\left( \frac{Limit\ Value}{4} \right)}$$

Number of fibers = 5 fibers/100 fields, based on a limit of detection (LOD) of 7 fibers/mm<sup>2</sup> on the filter  
 Area of 100 fields = 0.785mm<sup>2</sup>  
 Total Filter Area = 385mm<sup>2</sup>  
 Limit Value = as specified in the schedules of samples below

- a. For purposes of this specification, the sample volume calculated above will be considered to be of sufficient size so that there is a 95% level of



confidence that the value measured by each individual sample at the limit of detection (LOD) is less than or equal to the limit values specified below.

- b. For purposes of this specification, the Limit of Detection (LOD) is defined as 7 fibers/mm<sup>2</sup> on the filter or 5 fibers/100 fields.
- c. For purposes of this specification overloaded samples will be considered as exceeding the applicable limit value.

**D. During Asbestos Removal:**

- 1. From start of work of Section 01526 Temporary Enclosures through the work of Section 01711 Project Decontamination, the Owner will collect air samples.
- 2. Sample volume and sensitivity: inside the work area may vary depending upon conditions in the work area. If samples are overloaded at the sample volume required for a limit value equal to the "Stop Action Levels" or "Immediate Stop Action Levels" given later in this section, the level is considered to have been exceeded.

3. PCM Samples:

Location	Number Of Samples/Shift	Limit Value (Fibers/cc)	Approx. Volume (Liters)	Rate (Liters/Minute)
Work Area	2	0.1	100	1-10
Outside Work Area At Critical Barrier	1	0.01	1,000	1-10
Clean Room	1	0.01	1,000	1-10
Equipment Room	1	0.01	1,000	1-10

- F. Additional samples may be taken at Owner's or Owner's Representative's discretion. If airborne fiber counts exceed allowed limits additional samples may be taken as necessary to monitor fiber levels.

**1.14 ANALYTICAL METHODS USED BY THE OWNER:**

- A. The following methods will be used by the Owner in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.
  - 1. Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 method.

**1.15 LABORATORY TESTING BY OWNER:**

- A. The Owner's Air Monitoring Firm will be employed for analyses of the air samples. A microscope and technician will be setup at the job site, so that verbal reports on air samples can be obtained immediately.
- B. A complete record of all air monitoring and results will be furnished to the Owner, and the Contractor.
- C. Written Reports: of all air monitoring tests will be posted at the job site on a daily basis.



### 1.16 FIBERS AND STRUCTURES

- A. Fibers Counted: The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts.
1. Large Fibers: "Airborne Fibers" referred to above include all fibers regardless of composition as counted by phase contrast microscopy (PCM), unless additional analysis by transmission or scanning electron microscopy demonstrates to the satisfaction of the Owner's Representative that non-asbestos fibers are being counted. "Airborne Fibers" counted in samples analyzed by transmission electron microscopy shall be asbestos fibers, greater than 5 microns in length. For purposes of stop action levels, subsequent to analysis by electron microscopy, the number of "Airborne Fibers" shall be determined by multiplying the number of fibers, regardless of composition, counted by PCM by the proportion of fibers that are asbestos as determined by TEM (a number equal to, asbestos fibers counted, divided by all fibers counted in the electron microscopy analysis).
  2. Small Structures: "Airborne Fibers" referred to above include asbestos structures (fibers, bundles, clusters or matrices) of any diameter and any length greater than 0.5 microns.

### 1.17 ADDITIONAL TESTING:

- A. The Contractor may conduct air monitoring and laboratory testing. If he elects to do this, the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner or the Owner's Representative.

### 1.18 PERSONAL MONITORING:

- A. Owner will not perform air monitoring for the Contractor to meet Contractor's OSHA requirements for personal sampling or any other purpose.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 STOP ACTION LEVELS:

- A. Inside Work Area: Maintain an average airborne count in the Work Area of less than 0.5 fibers per cubic centimeter. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds 0.5 fibers per cubic centimeter, stop all work, leave Pressure Differential System in operation and notify Owner's Representative. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.
1. If airborne fiber counts exceed 2.5 fibers per cubic centimeter for any period of time cease all work except corrective action until fiber counts fall below 0.5 fibers per cubic centimeter and notify Owner's Representative. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.
- B. Inside Work Area: Maintain an average airborne count in the work area of less than the Stop Action Level given below for the type of respiratory protection in use. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber



counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds the Stop Action Level, stop all work except corrective action, leave pressure differential and air circulation system in operation and notify Owner's Representative. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.

STOP ACTION LEVEL(f/cc)	IMMEDIATELY STOP LEVEL(f/cc)	MINIMUM RESPIRATOR REQUIRED	PROTECTION FACTOR
1.0	2.5	PAPR	1,000

1. If airborne fiber counts exceed Immediate Stop Level given above for type of respiratory protection in use for any period of time cease all work except corrective action. Notify Owner's Representative. Do not recommence work until fiber counts fall below Stop Action Level given above for the type of respiratory protection in use. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.
- C. Outside Work Area: If any air sample taken outside of the Work Area exceeds the base line established in Part 1 of this section, immediately and automatically stop all work except corrective action. The Owner's Representative will determine the source of the high reading and so notify the Contractor in writing.
1. If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:
    - a. Immediately erect new critical barriers as set forth in Section 01526 Temporary Enclosures to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, and floor).
    - b. Decontaminate the affected area in accordance with Section 01712 Cleaning & Decontamination Procedures.
    - c. Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for re-occupancy in accordance with Section 01711 Project Decontamination.
    - d. Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.
    - e. If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room as set forth in Section 01563 Decontamination Units at entry point to affected area.
    - f. After Certification of Visual Inspection in the Work Area remove critical barriers separating the work area from the affected area.



Final air samples will be taken within the entire area as set forth in Section 01711 Project Decontamination.

2. If the high reading was the result of other causes initiate corrective action as determined by the Owner's Representative.
- D. Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

### 3.2 STOP WORK:

- A. If the Owner, Owner's Representative, or Project Administrator presents a written stop work order, immediately and automatically conform to that stop work order, while maintaining temporary enclosures and pressure differential. Do not recommence abatement work until authorized in writing by Owner, Owner's Representative or Project Administrator.
- B. Immediately initiate the following actions: After being presented with a stop work order immediately:
1. Cease all asbestos removal activities, or any other activities that disturbs ACM.
  2. Repair any fallen, ripped or otherwise failed work area isolation measures.
  3. Maintain in operation all work area isolation measures including those required by Sections 01526 "Temporary Enclosures," 01513 "Temporary Pressure Differential & Air Circulation System," 01563 "Decontamination Units."
  4. Maintain all worker protections including those required by Sections 01560 "Worker Protection - Asbestos Abatement," and 01562 "Respiratory Protection."
  5. Fog the air in the work area with a mist of amended water to reduce airborne fiber levels.

Do not recommence work until authorized in writing by the Owner or Owner's Representative.



**PART 4 SCHEDULE OF ASBESTOS-CONTAINING MATERIALS:**

LOCATION	MATERIAL DESCRIPTION	QUANTITY	ASBESTOS CONTENT	ENCLOSURE TYPE	CLEARANCE CRITERIA
FIRST FLOOR	9X9 FLOOR TILE (NO MASTIC)	ESTIMATED 1,740 SF	8% CHRYSOTILE ASBESTOS	FULL	PCM
FIRST FLOOR	9X9 FLOOR TILE AND MASTIC	EST. 1,216 SF	8-10% CHRYSOTILE ASBESTOS	FULL	PCM
FIRST FLOOR	12X12 FLOOR TILE (NO MASTIC)	EST. 1,320 SF	5% CHRYSOTILE ASBESTOS	FULL	PCM
FIRST FLOOR	FIRE DOORS	2 EA (ONE DOUBLE DOOR, ONE SINGLE DOOR)	90% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY
FIRST FLOOR (GRID 1.21)	BLACK CAULK @ ON BRICK WALL	10 LF TOTAL (1 EA LOCATION)	90% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY
BATHROOM & KITCHEN	FLAT TRANSITE WALL PANELS	EST. 124 SF TOTAL	20% CHRYSOTILE ASBESTOS	FULL	PCM
BOILER ROOM	BOILER INTERNAL AND EXTERNAL GASKETS AND PACKING	4'L X 3'W X 4'H IN SIZE (EST. 20 CF)	60% CHRYSOTILE ASBESTOS	FULL	PCM
1 <sup>ST</sup> FLOOR	INTERIOR AND EXTERIOR WINDOW CAULKING	32 EACH (EST. 776 LF TOTAL)	2-3% CHRYSOTILE, 2% ANTHOPHYLLITE	REGULATED BARRIER TAPE	VISUAL ONLY
1 <sup>ST</sup> FLOOR	INTERIOR WINDOW CAULKING	2 EACH (EST. 40 LF TOTAL)	3% CHRYSOTILE	REGULATED BARRIER TAPE	VISUAL ONLY
SECOND FLOOR LOFT	BLACK CAULK @ ON BRICK WALL	11 LF TOTAL (2 EA LOCATIONS)	90% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY
2 <sup>ND</sup> FLOOR	INTERIOR AND EXTERIOR WINDOW CAULKING	6 EACH (EST. 75 LF TOTAL)	2-3% CHRYSOTILE, 2% ANTHOPHYLLITE	REGULATED BARRIER TAPE	VISUAL ONLY
EXTERIOR	CORRUGATED ROOF PANELS	EST. 7,560 SF	20% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY
EXTERIOR	ROOF TAR ON CHIMNEY AND VENT PIPES	EST. 50 LF	5% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY
EXTERIOR	ROOFTOP DUCT SEALANT	EST. 20 LF	3% CHRYSOTILE ASBESTOS	REGULATED BARRIER TAPE	VISUAL ONLY

END OF SECTION – 01013



## SECTION 01043 - COORDINATION - ASBESTOS ABATEMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
1. Plan of Action.
  2. Contingency Plan.
  3. Notifications.
  4. Pre-Construction Inspection.
  5. Contractor's Construction Schedule.
  6. Administrative and supervisory personnel.
  7. Pre-Construction Conference
  8. Progress Meetings
  9. Coordination meetings.
  10. Record Keeping.
  11. Special Reports.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
1. "Section 01301 - Submittals - Asbestos Abatement" for administrative procedures regarding submittals.
  2. "Section 01601 - Materials and Equipment - Asbestos Abatement" for coordinating general installation.
  3. "Section 01701 - Project Closeout - Asbestos Abatement" for coordinating contract closeout.

#### 1.3 COORDINATION

- A. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly completion of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.



1. Schedule construction operations in the sequence required to obtain the best results where execution of one part of the Work depends on execution of other components, before or after its own execution.
- B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
  1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  1. Preparation of schedules.
  2. Installation and removal of temporary facilities.
  3. Delivery and processing of submittals.
  4. Progress meetings.
  5. Project closeout activities.
- D. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.
  1. Salvage materials and equipment involved in performance of, but not actually incorporated in the Work.

#### 1.4 PLAN OF ACTION:

- A. Prepare a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of building occupants and visitors to the site, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, closing out of the building's HVAC system, method of removal to prohibit visible emissions, and packaging of removed asbestos debris.
  1. Submit the Plan of Action to the Owner's Representative for information only, prior to the start of work.

#### 1.5 CONTINGENCY PLAN:

- A. Contingency Plan: Prepare a contingency plan for emergencies or any other event that may require breaching of work area containment or modification or abridgement of decontamination or work area isolation procedures. Include in this plan procedures for performing electrical and mechanical repairs inside containment after abatement work has begun. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency. Items to be addressed in the plan include, but are not limited to the following:



1. Fire
2. Accident
3. Life threatening injury
4. Non life threatening injury
5. Rescue
6. Power Failure
7. Pressure differential system failure
8. Breach of containment
9. Electrical faults or shock
10. Supplied air system failure
11. Waste spills
12. Unauthorized entry into work area
13. Elevated air samples outside of containment
14. Repairs inside containment

#### 1.6 NOTIFICATIONS

- A. Notify other entities at the job site of the nature of the asbestos abatement activities, location of asbestos-containing materials (ACM), requirements relative to asbestos set forth in these specifications and applicable regulations. Advance notification will be made to:
  1. Employees who will perform asbestos abatement work or related activities, or who will be in the work area during the course of the work of this contract.
  2. Employers of employees who work and/or will be working in adjacent areas during the course of the work of this contract.
- B. Notify emergency service agencies including fire, ambulance, police or other agency that may service the abatement work site in case of an emergency. Notification is to include methods of entering work area, emergency entry and exit locations, modifications to fire notification or fire fighting equipment, and other information needed by agencies providing emergency services.
- C. Notifications of Emergency: Any individual at the job site may notify emergency service agencies if necessary without effect on this Contract or the Contract Sum.

#### 1.7 PRE-CONSTRUCTION INSPECTION:

- A. Inspect areas in which work will be performed, prior to commencement of work. 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 to Owner's Representative for record purposes prior to starting work.



## 1.8 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 5 days prior to mobilization.
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values."
  2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
  3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
  4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
  5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
  6. Indicate Clearance of each Work Area in advance of the dates established for Clearance. Allow time for testing and other Owner's Representative's procedures necessary for certification of Clearance.
  7. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Owner's Representative's procedures necessary for certification of Substantial Completion.
- B. Phasing: On the schedule, show how requirements for phased completion to permit Work by separate Contractors affect the sequence of Work.
- C. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.
- D. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of Work performed as of the dates used for preparation of payment requests.
1. Refer to Division 1 Section "Applications for Payment" for cost reporting and payment procedures.
- E. Distribution: Following response to the initial submittal, print and distribute copies to the Owner's Representative, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
1. When revisions are made, distribute 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 construction activities.



- F. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

### 1.9 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. Project Supervisor: Provide a full-time Project Supervisor at the work site who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, project scheduling, management, etc. This person is the Contractor's Representative, and will function as the 'competent person' at the work site responsible for compliance with all applicable federal, state and local regulations, particularly those relating to ACM.
1. Training: The General Superintendent must have a current certification from a state approved trainer for a course that meets the requirements of the EPA Model Accreditation Plan for asbestos abatement contractor/supervisor (40 CFR part 763, Subpart E, Appendix C).
  2. Experience: The General Superintendent must have demonstrable experience in the successful management of asbestos abatement projects that are similar to the work of this contract.
    - a. The General Superintendent must have a minimum of two (3) years experience in the on-site management of asbestos abatement projects.
    - b. The General Superintendent must have had responsible charge of a minimum of ten (10) asbestos abatement projects similar in size and type to the work of this contract.
  3. Competent Person: The General Superintendent is to be a Competent Person as required by OSHA in 29 CFR 1926.

### 1.10 PRE-CONSTRUCTION CONFERENCE:

- A. An initial progress meeting, recognized as "Pre-Construction Conference" will be convened by the Owner's Representative prior to start of any work. The preconstruction conference will be scheduled before start of construction, at a time convenient to the Owner and the Owner's Representative. Meet at the project site, or as otherwise directed, with General Superintendent, Owner, Owner's Representative, Project Administrator, and other entities concerned with the asbestos abatement work.
- B. Attendees: Authorized representatives of the Owner, Owner's Representative, and their consultants will be in attendance. An authorized representative of the Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
1. 48 hours advance notice will be provided to all participants prior to convening Pre-Construction Conference.
- C. Agenda: This is an organizational meeting, to review responsibilities and personnel assignments, to locate regulated areas and temporary facilities including power, light, water, etc. Items of significance that could affect progress will be discussed, including the following:
1. Tentative construction schedule.



2. Critical work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data, and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Parking availability.
11. Office, work, and storage areas.
12. Equipment deliveries and priorities.
13. Safety procedures.
14. First aid.
15. Security.
16. Housekeeping.
17. Working hours.

#### 1.11 PROGRESS MEETINGS:

- A. General: In addition to specific coordination and pre-installation meetings for each element of work, and other regular project meetings held for other purposes, the Owner's Representative will hold general progress meetings as required. These meeting will be scheduled, where possible, at time of preparation of payment request.
- B. Attendees: Representatives of the Owner and/or the Owner's Representative will attend this meetings. In addition to representatives of the Contractor, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the work. Require each entity then involved in planning, coordination or performance of work to be properly represented at each meeting.
- C. Agenda: Be prepared to discuss the following items at the progress meetings. Review other items of significance that could affect progress.
  1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.



### 1.12 RECORD KEEPING:

- A. Daily Log: Maintain a Daily Log (in an area accessible to the Owner, Owner's Representative and Project Administrator) as a bound, sequential, hand-written record carefully prepared daily that documents but is not limited to the following items:
1. Meetings; purpose, attendees, brief discussion
  2. Special or unusual events, i.e. barrier breaching, equipment failures, accidents
  3. Documentation of Contractor's completion of the following:
  4. Inspection of work area preparation prior to start of removal and daily thereafter.
    - a. Removal of any sheet plastic barriers
    - b. Contractor's inspections prior to spray back, lock back, encapsulation, enclosure or any other operation that will conceal the condition of ACM or the substrate from which such materials have been removed.
    - c. Removal of waste materials from work area
    - d. Decontamination of equipment (list items)
    - e. Contractor's final inspection/final air test analysis.
- B. Entry/Exit Log: Maintain within the Decontamination Unit a daily log documenting the dates and time of but not limited to, the following items:
1. Visitations; authorized and unauthorized with the following information
    - a. Name
    - b. Organization
    - c. Entry time
    - d. Exit Time
    - e. Respiratory protection
  2. Personnel, by name, entering and leaving the work area with the following information
    - a. Printed Name
    - b. Identification Number
    - c. Entry Time
    - d. Exit Time
    - e. Respiratory Protection
- C. Air Monitoring Results: Post personnel and area air monitoring results in Decontamination Unit within 24 hours of sample collection. Post the respiratory protection requirements for the work in progress.
- D. Records in Decontamination Unit: Maintain the following documentation in the Decontamination Unit, in a location accessible to workers.



1. Documentation of inspections by OSHA, EPA or local authority
  2. Respiratory Protection Program.
- E. Other records: Maintain other documentation in a location that is accessible to the Owner, Owner's Representative, and Project Administrator including:
1. Waste Manifests and shipping records
  2. Landfill receipts.
  3. Accident reports.
- F. Copies of all records listed above shall be submitted to the Owners Representative upon completion of the project.

### 1.13 SPECIAL REPORTS:

- A. General: Except as otherwise indicated, submit special reports directly to Owner within one day of occurrence requiring special report, with copy to Owner's Representative and others affected by occurrence.
- B. Reporting Unusual Events: When an event of unusual and significant nature occurs at site (examples: failure of pressure differential system, rupture of temporary enclosures), prepare and submit report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise Owner in advance at earliest possible date.
- C. Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury, or where work was stopped for over four hours during a scheduled shift.
- D. Report Discovered Conditions: When an unusual condition of the building is discovered during the work (e.g. leaks, termites, corrosion) prepare and submit a special report indication condition discovered.

### 1.14 SUBMITTALS

- A. Before the Start of Work: Submit the following to the Owner's Representative in the same manner as product data. Do not begin work until these submittals are returned with Owner's Representative's action stamp indicating that all submittals have been "received-not reviewed".
1. Plan of Action.
  2. Contingency Plans.
  3. Project Directory.
  4. Notifications: copy of notification sent to other entities at the work site, and to emergency service agencies.
  5. Pre-Construction Inspection: Report on inspection carried out as required by this section. Include copies of all photographs, video tapes, etc.
  6. Contractor's Construction Schedule.



7. Accreditation: Submit evidence in the form of training course certificates for the General Superintendent, Supervisors, and Forepersons as asbestos abatement supervisors in accordance with AHERA requirements. Submit evidence in the form of training course certificates that each worker is trained as an asbestos abatement worker in accordance with AHERA requirements.
8. Resume: Submit resume of General Superintendent
- B. Submit daily: Provide two (2) copies for information purposes of all documents indicated in the following sub-sections to Project Administrator by end of the next working day after the day they are received by Contractor.
  1. Section on Record Keeping.
  2. Section on Special Reports.
- C. Project Close-out: Submit two (2) copies for information purposes of all documents indicated in the following sections at final closeout of project as a project close-out submittal.
  1. Section on Record Keeping.
  2. Section on Special Reports.

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

**PART 3 - EXECUTION**

**END OF SECTION - 01043**



## SECTION 01097 - REFERENCE STANDARDS AND DEFINITIONS - ASBESTOS ABATEMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Drawings prepared for communication of the work are intended to be schematic by design and may not necessarily reflect actual field dimensions as identified in the field. The Contractor shall be expected to field validate all aspects of the drawings and draw upon professional experience regarding the work conveyed.

#### 1.2 DEFINITIONS

- A. General: Basic contract definitions are included in the Conditions of the Contract.
  1. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. Location is not limited.
  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.
  3. "Approved": The term "approved," when used in conjunction with the Owner's Representative's action on the Contractor's submittals, applications, and requests, is limited to the Owner's Representative's duties and responsibilities as stated in the Conditions of the Contract.
  4. "Regulations": The term "regulations" includes laws, ordinances, statutes, 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.
  5. "Furnish": The term "furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
  6. "Install": The term "install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, 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 the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.



- a. The term "experienced," when used with the term "installer," means having a minimum of 5 previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.
  - b. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
  - c. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
    - (1) This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.
9. "Project Site" is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work 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 on which the Project is to be built.
10. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.
11. "Owner's Representative": This is the entity described as the "Architect" in AIA Document A201 "General Conditions of the Contract for Construction." All references to Architect or Engineer in the Contract Documents in all cases refer to the Owner's Representative. The Owner's Representative will represent the Owner during construction and until final payment is due. 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": This is the entity described as the "Project Representative" in AIA Document A201 "General Conditions of the Contract for Construction." The Project Administrator is a full time representative of the Owner at the job site with authority to stop the work upon written or verbal order if requirements of the Contract Documents are not met, or if in the sole judgement 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. "Stop Work Order": is a written order to cease asbestos removal, encapsulation or enclosure activities. The Contractor must maintain work area enclosure, pressure



differential isolation and ventilation of the work area, and decontamination units during the period that a Stop Work Order is in affect.

14. "General Superintendent": This is the Contractor's Representative at the work site. This person must be a Competent Person as defined by OSHA in 29 CFR 1926.

B. Definitions Relative to Asbestos Abatement:

1. "Adequately Wet" means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from the asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
2. "Asbestos": The asbestiform varieties of chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite, actinolite, and any of these minerals that has been chemically treated and/or altered. For purposes of the contract documents materials described in the contract documents as asbestos are to be considered as asbestos.
3. "Asbestos-Containing Material (ACM)": Any material containing more than 1% asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.
4. "Asbestos-Containing Waste Material": any waste that contains asbestos. This term includes filters or other materials contaminated with asbestos. This term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.
5. "Asbestos debris": pieces of ACM that can be identified by color, texture, or composition, or dust, if the dust is determined by an accredited inspector to be ACM.
6. "Certified Industrial Hygienist (C.I.H.)": one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.
7. "Competent person": an individual who meets the requirements of OSHA as a "competent person" for the specific activity involved in the work. The "competent person" must meet the requirements of 29 CFR 1926.32(f), and 29 CFR 1926.1101.
8. "Filter": A media component used to remove solid or liquid particles from air and water.
9. "Friable Asbestos": any asbestos-containing material that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
10. "Grinding": to reduce to powder or small fragments and includes manual or mechanical chipping or drilling.
11. "HEPA Filter": A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 microns in diameter.
12. "HEPA Filter Vacuum Collection Equipment (or vacuum cleaner)": High efficiency particulate air filtered vacuum collection equipment with a HEPA filter.
13. "Intact" : that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.
14. "Leak-tight": that solids or liquids cannot escape or spill out. It also means dust-tight.



15. "Negative Pressure Enclosure (NPE)": A pressure differential and ventilation system where the work area is maintained at a negative pressure relative to air pressure outside the work area.
16. "Non-friable Material": any material that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure and has not been rendered friable.
17. "Personal Monitoring": Sampling of the asbestos fiber concentrations within the breathing zone of an employee.
18. "Surfacing material": material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
19. "Thermal system insulation (TSI)": insulation applied to pipes, fittings, boilers, breeching, tanks, ducts or other components to prevent heat loss or gain.
20. "Time Weighted Average (TWA)": The average concentration of a contaminant in air during a specific time period as determined by the method prescribed in Appendix A of 29 CFR part 1926.1101.
21. "Visible Emissions": Any emissions containing particulate material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
22. "Working Day": Monday through Friday and includes holidays that fall on any of the days Monday through Friday as indicated in the notification requirements.

### 1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on CSRF's 16-Division format and Master Format's numbering system.
- B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Streamlined Language: The Specifications generally use the imperative mood and streamlined language. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

### 1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if



bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. **Conflicting Requirements:** Where compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer to the Owner's Representative before proceeding for a decision on requirements that are different but apparently equal, and where it is uncertain which requirement is the most stringent.
1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum acceptable. 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 the requirements. Refer uncertainties to the Owner's Representative for a decision before proceeding.
- C. **Copies of Standards:** Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
- D. **Standards:** which apply to asbestos abatement work or 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
    - a. **Fundamentals Governing the Design and Operation of Local Exhaust Systems** Publication Z9.2
    - b. **Practices for Respiratory Protection** Publication Z88.2
  2. **American Society for Testing and Materials (ASTM)**  
100 Bar Harbor Drive  
West Conshocken, PA 19428-2959  
(610) 832-9585
    - a. **Safety and Health Requirements Relating to Occupational Exposure to Asbestos** E 849
    - b. **ASTM Standard Practice for Visual Inspection of Asbestos Abatement Projects** E1368
- E. **Abbreviations and Names:** Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in the Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.



1. ACI American Concrete Institute  
P.O. Box 19150  
Detroit, MI 48219 (313) 532-2600
2. ACIL American Council of Independent Laboratories  
1629 K St., NW  
Washington, DC 20006 (202) 887-5872
3. ACPA American Concrete Pipe Assoc.  
8300 Boone Blvd., Suite 400  
Vienna, VA 22182 (703) 821-1990
4. ACGIH American Conference of Governmental Industrial Hygienists  
1330 Kemper Meadow Dr.  
Cincinnati, OH 45240 (513) 742-2020
5. AIA The American Institute of Architects  
1735 New York Ave., NW  
Washington, DC 20006 (202) 626-7300
6. AIHA American Industrial Hygiene Assoc.  
2700 Prosperity Ave., Suite 250  
Fairfax, VA 22031 (703) 849-8888
7. ANSI American National Standards Institute  
11 West 42nd St., 13th Floor  
New York, NY 10036 (212) 642-4900
8. ASHRAE American Society of Heating,  
Refrigerating and Air-Conditioning Engineers  
1791 Tullie Circle, NE  
Atlanta, GA 30329 (404) 636-8400
9. ASME American Society of Mechanical Engineers  
345 East 47th St.  
New York, NY 10017 (212) 705-7722
10. ASPE American Society of Plumbing Engineers  
3617 Thousand Oaks Blvd., Suite 210  
Westlake, CA 91362 (805) 495-7120
11. ASTM American Society for Testing and Materials  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959 (610) 832-9585



12. CGA Compressed Gas Assoc.  
1725 Jefferson Davis Highway, Suite 1004  
Arlington, VA 22202-4100 (703) 412-0900
13. FM Factory Mutual Systems  
1151 Boston-Providence Turnpike  
P.O. Box 9102  
Norwood, MA 02062 (617) 762-4300
14. GA Gypsum Association  
810 First St., NE, Suite 510  
Washington, DC 20002 (202) 289-5440
15. IEEE Institute of Electrical and Electronic Engineers  
345 E. 47th St.  
New York, NY 10017 (212) 705-7900
16. IETA International Electrical Testing Assoc.  
P.O. Box 687  
Morrison, CO 80465 (303) 697-8441
17. IRI Industrial Risk Insurers  
P.O. Box 5010  
85 Woodland St.  
Hartford, CT 06102-5010 (203) 520-7300
18. ISA Instrument Society of America  
P.O. Box 12277  
67 Alexander Dr.  
Research Triangle Park, NC 27709 (919) 549-8411
19. ISO International Standards Organization
20. NEC National Electrical Code (from NFPA)
21. NECA National Electrical Contractors Assoc.  
3 Bethesda Metro Center, Suite 1100  
Bethesda, MD 20814 (301) 657-3110
22. NEMA National Electrical Manufacturers Assoc.  
2101 L St., NW, Suite 300  
Washington, DC 20037 (202) 457-8400



- 23. NFPA National Fire Protection Assoc.  
One Batterymarch Park  
P.O. Box 9101  
Quincy, MA 02269-9101 (617) 770-3000 (800) 344-3555
- 24. NRCA National Roofing Contractors Assoc.  
10255 W. Higgins Rd., Suite 600  
Rosemont, IL 60018-5607 (708) 299-9070
- 25. RFCI Resilient Floor Covering Institute  
966 Hungerford Dr., Suite 12-B  
Rockville, MD 20805 (301) 340-8580
- 26. UL Underwriters Laboratories  
333 Pfingsten Rd.  
Northbrook, IL 60062 (708) 272-8800
- 27. White Lung Association  
PO Box 1483  
Baltimore, MD 21203

F. Federal Government Agencies: Names and titles of federal government standard- or Specification-producing agencies are often abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard- or Specification-producing agencies of the federal government. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

- 1. CE Corps of Engineers  
(U.S. Department of the Army)  
Chief of Engineers - Referral  
Washington, DC 20314 (202) 272-0660
- 2. CFR Code of Federal Regulations  
(Available from the Government Printing Office)  
N. Capitol St. between G and H St., NW  
Washington, DC 20402 (202) 783-3238  
(Material is usually first published in the "Federal Register")
- 3. CPSC Consumer Product Safety Commission  
5401 Westbard Ave.  
Bethesda, MD 20207 (800) 638-2772
- 4. CS Commercial Standard  
(U.S. Department of Commerce)  
Government Printing Office



- Washington, DC 20402 (202) 783-3238
5. DOC Department of Commerce  
14th St. and Constitution Ave., NW  
Washington, DC 20230 (202) 482-2000
6. DOT Department of Transportation  
400 Seventh St., SW  
Washington, DC 20590 (202) 366-4000
7. EPA Environmental Protection Agency
8. FS Federal Specification (from GSA)  
Specifications Unit (WFSIS)  
7th and D St., SW  
Washington, DC 20407 (202) 708-9205
9. GSA General Services Administration  
F St. and 18th St., NW  
Washington, DC 20405 (202) 708-5082
10. MIL Military Standardization Documents  
(U.S. Department of Defense)  
Naval Publications and Forms Center  
5801 Tabor Ave.  
Philadelphia, PA 19120
11. NIST National Institute of Standards and Technology  
(U.S. Department of Commerce)  
Gaithersburg, MD 20899 (301) 975-2000
12. OSHA Occupational Safety and Health Administration  
(U.S. Department of Labor)  
200 Constitution Ave., NW  
Washington, DC 20210 (202) 219-6091
13. PS Product Standard of NBS  
(U.S. Department of Commerce)  
Government Printing Office  
Washington, DC 20402 (202) 783-3238
14. USPS U.S. Postal Service  
475 L'Enfant Plaza, SW  
Washington, DC 20260-0010 (202) 268-2000



G. Trade Union Jurisdictions: The Contractor shall maintain, and require subcontractors to maintain, complete current information on jurisdictional matters, regulations and pending actions, as applicable to construction activities. The manner in which Contract Documents have been organized and subdivided is not intended to be indicative of trade union or jurisdictional agreements.

1. Discuss new developments at project meetings at the earliest feasible dates. Record relevant information and actions agreed upon.
2. Assign and subcontract construction activities, and employ tradesmen and laborers in a manner that will not unduly risk jurisdictional disputes that could result in conflicts, delays, claims and losses.

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

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

**END OF SECTION 01097**



## SECTION 01098 - CODES, REGULATIONS AND STANDARDS - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. This section sets forth governmental regulations which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.
  - 1. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.
  - 2. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

#### 1.3 CODES, REGULATIONS AND STANDARDS

- A. General Applicability of Codes, Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes and regulations 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. Contractor Responsibility: 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 Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the contractor, the contractor's employees, or subcontractors.
- C. Federal Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:
  - 1. OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:
    - a. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite;  
Final Rules Title 29, Part 1910, Section 1001 of the Code of Federal Regulations



Final Rules Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

- b. Respiratory Protection  
Title 29, Part 1910, Section 134 of the Code of Federal Regulations  
Title 29, Part 1926, Section 103 of the Code of Federal Regulations
- c. Personal Protective Equipment for General Industry  
Title 29, Part 1910, Section 132 of the Code of Federal Regulations  
Title 29, Part 1926, Sections 95 - 107 of the Code of Federal Regulations
- d. Access to Employee Exposure and Medical Records  
Title 29, Part 1926, Section 33 of the Code of Federal Regulations
- e. Hazard Communication  
Title 29, Part 1926, Section 59 of the Code of Federal Regulations
- f. Specifications for Accident Prevention Signs and Tags  
Title 29, Part 1910, Section 145 of the Code of Federal Regulations
- g. Permit Required Confined Space  
Title 29, Part 1910, Section 146 of the Code of Federal Regulations
- h. Construction Industry  
Title 29, Part 1910, Section 1001 of the Code of Federal Regulations  
Title 29, Part 1926, Section 1101 of the Code of Federal Regulations
- i. Construction Industry - General Duty Standards  
Title 29, Part 1926, Sections 20 through 35 of the Code of Federal Regulations
- j. Shipyard Industry  
Title 29 Part 1915 Section 1001 of the Code of Federal Regulations

2. DOT: U. S. Department of Transportation, including but not limited to:

- a. Hazardous Substances  
Title 49, Part 171 and 172 of the Code of Federal Regulations
- b. Hazardous Material Regulations  
General Awareness and Training Requirements for Handlers, Loaders and Drivers  
Title 49, Parts 171-180 of the Code of Federal Regulations
- c. Hazardous Material Regulations  
Editorial and Technical Revisions  
Title 49, Parts 171-180 of the Code of Federal Regulations

3. EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:

- a. Asbestos Abatement Projects; Worker Protection Rule



- Title 40 Part 763, Sub-part G of the Code of Federal Regulations
  - b. Asbestos Hazard Emergency Response Act (AHERA) Regulation  
Title 40, Part 763, Sub-part E of the Code of Federal Regulations
  - c. EPA Model Accreditation Plan - Asbestos Containing Materials  
Final Rule & Notice  
Title 40, Part 763, Sub-part E, Appendix C of the Code of Federal  
Regulations
  - d. National Emission Standard for Hazardous Air Pollutants  
(NESHAP)  
National Emission Standard for Asbestos  
Title 40, Part 61, Sub-part A, and Sub-part M (Revised Sub-part B) of  
the Code of Federal Regulations
- D. Local Requirements: which govern asbestos abatement work or hauling and disposal of  
asbestos waste materials include but are not limited to the following:
- 1. State of Delaware, Department of Natural Resources and Environmental Control,  
"Delaware Regulations Governing the Control of Air Pollution Emissions Standards for  
Asbestos". November 27, 1985, Updated June 16, 1995.
  - 2. State of Delaware Asbestos Contractor, Supervisor and Worker Certifications  
Program.
  - 3. State of Delaware Hazardous Chemical Information Act.
  - 4. Abide by all local requirements which govern asbestos abatement work or hauling  
and disposal of asbestos waste materials.

#### 1.4 NOTICES:

##### A. U.S. ENVIRONMENTAL PROTECTION AGENCY

- 1. Postmark or Deliver Written Notification as required by USEPA National Emission  
Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61,  
Subpart M) to the regional Asbestos NESHAP Contact at least 10 working days prior  
to beginning any work on asbestos-containing materials (ACM). Send notification to  
the following address:
  - a. REGION 3  
Asbestos NESHAP Contact  
Air Management Division  
USEPA  
841 Chestnut Street  
Philadelphia, PA 19107  
(215) 597-6550
- 2. Notification: Include the following information in the notification sent to the NESHAP  
contact:
  - a. Indication whether the notification is the original or revised  
notification



- b. Name, address, and telephone number of owner or operator.
- c. Name, address, and telephone number of contractor.
- d. Type of Operation (demolition or renovation).
- e. Description of the facility or affected part of the facility being demolished or renovated, including the size (square feet [square meters], number of floors), age, present and prior use of the facility.
- f. Estimate of the approximate amount of RACM to be removed from the facility in terms of linear meters [linear feet] of pipe, and surface area in square meters [square feet] of other facility components. Also estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.
- g. For facilities in which the amount of friable asbestos materials less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) or 1 cubic meter (35 cubic feet) if the length and width could not be measured. On other facility components, explain techniques of estimation.
- h. Location and street address (including building number or name and floor or room number, if appropriate), city county, and state, of the facility being demolished or renovated.
- i. Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of 40 CFR 61.145.
- j. Scheduled starting and completion dates of demolition or renovation.
- k. Nature of planned demolition or renovation and method(s) to be used, including demolition or renovation techniques to be used and description of affected facility components.
- l. Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61 Subpart M).
- m. Name and location of the waste disposal site where the asbestos containing waste material will be deposited.
- n. A certification that at least one person trained as required by paragraph (c)(8) of 40 CFR 61.145 will supervise the stripping and removal described by this notification.



- o. Description of procedures to be followed in the event that the unexpected RACM is found or Category II non-friable ACM becomes crumbled, pulverized, or reduced to powder.
- p. Name, address, and telephone number of the waste transporter.

B. STATE AND LOCAL AGENCIES:

- 1. Send written notification as required by state and local regulations prior to beginning any work on ACM.

**1.5 PERMITS:**

- A. Permit: All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for ACM, as required for transporting of waste ACM to a disposal site.
- B. Contractor is responsible for obtaining any demolition, building, renovation or other permits, and for paying application fees, if any, where required by State or Local jurisdictions.

**1.6 LICENSES:**

- A. Licenses: Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

**1.7 POSTING AND FILING OF REGULATIONS**

- A. Posting and Filing of Regulations: Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standard. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

**1.8 SUBMITTALS:**

- A. Before Start of Work: Submit the following to the Owner's Representative for review. No work shall begin until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.
  - 1. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work including:
    - a. State and Local Regulations: Submit copies of codes and regulations applicable to the work if requested by the Owner's Representative.
  - 2. Notices: Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.



3. Permits: Submit copies of current valid permits required by state and local regulations.
4. Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

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

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

**END OF SECTION - 01098**



**SECTION 01301 - SUBMITTALS - ASBESTOS ABATEMENT**

**SUBMITTAL CHECKLIST**

The following is a listing of the submittals required by each section.

**01013 Summary of Work - Asbestos Abatement**

Before Start of Work:

Plan of Action

Pre-construction Inspection

**01043 Project Coordination - Asbestos Abatement**

Before Start of Work:

Contractors Construction Schedule

Contingency Plans

Telephone Numbers

Notifications sent to other entities at the work site.

Notifications sent to emergency service agencies.

Resume: of general superintendent.

Accreditation: Certificate of accreditation of general superintendent

Staff Names:

Periodically During Work:

Daily Logs

Event Reports

Accident Reports

Discovered Condition Reports

**01098 Codes, Regulations and Standards - Asbestos Abatement**

Before Start of Work:

State of Delaware Regulations

Local Regulations

State Of Delaware Contractor Licenses

Notifications To DNREC and EPA

Permits (Where Applicable)

**01301 Submittals**

Before Start of Work:

Submittal Schedule

Periodically During Work:

Progress photographs

Record Documents

**01503 Temporary Facilities - Asbestos Abatement**



Before Start of Work:

Scaffolding  
Hot water heater  
Decontamination Unit Sub-panel  
Ground Fault Circuit Interrupters (GFCI)  
Lamps and Light Fixtures  
Temporary Heating Units  
Self Contained Toilet Units: Product Data, Sub-contractor  
First Aid Supplies  
Fire Extinguishers: product data, location schedule

**01513 Temporary Pressure Differential & Air Circulation System**

Before Start of Work:

Pressure Differential System Design  
HEPA Filtered Fan Units: Product data  
Monitoring Equipment: Product data  
Auxiliary Generator: Product data.  
Power Switch: Product data.  
Auxiliary Power System: Shop Drawing

Periodically During Work:

Pressure Differential Monitoring Results

**01526 Temporary Enclosures**

Material Safety Data Sheet

Spray Cement: Product data.  
Spray Cement: Manufacturer's installation instructions.  
Spray Cement: Material Safety Data Sheet.  
Sheet Plastic: Test reports on NFPA 701 test.  
Signs: Samples

**01560 Worker Protection - Asbestos Abatement**

Before Start of Work:

AHERA Accreditation: for each worker.  
State of Delaware License: for each worker.  
Historic Airborne Fiber Data.  
Certificate Worker Acknowledgment: for each worker.  
Report from Medical Examination: of each worker.

**01562 Respiratory Protection**

Before Start of Work:

Product Data.  
NIOSH and MSHA Certifications.  
Type "C": System Diagram.  
Type "C": Operating Instruction.  
Respiratory Protection Program: written manual.  
Respiratory Protection Program: form at end of section.



Historic Airborne Fiber Data.  
Resume information.

**01563 Decontamination Units**

Before Start of Work:

Personnel Decontamination Unit: shop drawing.  
Equipment Decontamination Unit: shop drawing.  
Shower Pan: shop drawing.  
Shower Walls: product data.  
Shower Head and Controls: product data.  
Filters: product data.  
Filters: shop drawing.  
Hose Bib: product data.  
Wash Station Shower Stall: product data.  
Wash Station Shower Stall: shop drawing.  
Elastomeric membrane: product data.  
Lumber: product data on fire resistance treatment.  
Sump Pump: product data.  
Signs: samples.

**01601 Materials and Equipment - Asbestos Abatement**

Before Start of Work:

Product List Schedule

**01632 Substitutions - Asbestos Abatement**

Before Start of Work:

Refer to section.

Periodically During Work:

Refer to section

**01701 Project Closeout - Asbestos Abatement**

Periodically During Work:

Refer to section

**01711 Project Decontamination**

Periodically During Work:

Fire Test on Lock Back Encapsulants used.

**02084 Disposal of Regulated Asbestos-Containing Material**

Before Start of Work:

Waste Hauler State License

Waste Hauler Local License

Name and address of landfill.

Chain of Custody form

Waste Manifest Form.



Delaware Army National Guard  
23440 Ross Station Road  
Seaford, DE 19973

Former Seaford Armory  
Seaford, DE  
Asbestos Abatement

Label Samples.  
Periodically During Work:  
On a weekly basis: copies of manifests and disposal site receipts.

**END OF SUBMITTAL CHECKLIST**

NOT FOR BIDDING



## SECTION 01301 - SUBMITTALS - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
  1. Insurance Certificates
  2. Non-Collusion Statement
  3. Performance Bond
  4. Labor /Material Payment Bond
  5. Contractor's Construction Schedule
  6. Schedule Of Values
  7. 10 Day Notification
  8. Certificates And Licenses:
    - a. Delaware Specific State Licenses
    - b. Asbestos Abatement Worker Certification – Employees
    - c. Asbestos Abatement Supervisors Certifications
  9. Worker Acknowledgement Forms
  10. Worker Medicals
  11. Respiratory Protection Plan
  12. Plan of Action
  13. Contingency Plan
  14. List Of Subcontractors
  15. Product – MSDS
  16. Equipment List – Manufacture's Data
  17. Permits



### 1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
- B. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
1. Allow 2 weeks for initial review. Allow additional time if the Owner's Representative must delay processing to permit coordination with subsequent submittals.
  2. If an intermediate submittal is necessary, process the same as the initial submittal.
  3. Allow 2 weeks for reprocessing each submittal.
  4. No extension of Contract Time will be authorized because of failure to transmit submittals to the Owner's Representative sufficiently in advance of the Work to permit processing.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 by 5 inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  2. Include the following information on the label for processing and recording action taken.
    - a. Project name.
    - b. Date.
    - c. Name and address of the Owner's Representative.
    - d. Name and address of the Contractor.
    - e. Name and address of the subcontractor.
    - f. Name and address of the supplier.
    - g. Name of the manufacturer.
    - h. Number and title of appropriate Specification Section.
    - i. Drawing number and detail references, as appropriate.



- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Owner's Representative using a transmittal form. The Owner's Representative will not accept submittals received from sources other than the Contractor.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

#### 1.4 SUBMITTAL SCHEDULE

- A. Listing: At the end of this section is a listing of the principal submittals required for the work. This listing is not necessarily complete, nor does the listing reflect the significance of each submittal requirement. The listing is included only for the convenience of users of the Contract Documents.
- B. Submittal Schedule: After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for submittal of the Contractor's Construction Schedule.
1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
  2. Prepare the schedule in chronological order. Provide the following information:
    - a. Scheduled date for the first submittal.
    - b. Related Section number.
    - c. Submittal category (Shop Drawings, Product Data, or Samples).
    - d. Name of the subcontractor.
    - e. Description of the part of the Work covered.
    - f. Scheduled date for resubmittal.
    - g. Scheduled date for the Owner's Representative's final release or approval.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Owner's Representative, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
1. When revisions are made, distribute 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 construction activities.
- D. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.5 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.



- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
  - 1. Dimensions.
  - 2. Identification of products and materials included by sheet and detail number.
  - 3. Compliance with specified standards.
  - 4. Notation of coordination requirements.
  - 5. Notation of dimensions established by field measurement.
- C. 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 36 by 48 inches.
- D. Initial Submittal: Submit one correctable, translucent, reproducible print and one blue- or black-line print for the Owner's Representative's review. The Owner's Representative will return the reproducible print.
  - 1. One of the prints returned shall be marked up and maintained as a "Record Document."
  - 2. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

#### 1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
  - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
    - a. Manufacturer's printed recommendations.
    - b. Compliance with recognized trade association standards.
    - c. Compliance with recognized testing agency standards.
    - d. Application of testing agency labels and seals.
    - e. Notation of dimensions verified by field measurement.
    - f. Notation of coordination requirements.
  - 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.
- C. Submittals: Submit 3 copies of each required submittal. The Owner's Representative will retain two, and will return the one marked with action taken and corrections or modifications required.
  - 1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.



- D. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
1. Do not proceed with installation until a final submittal is in the installer's possession.
  2. Do not permit use of unmarked copies of Product Data in connection with construction.

### 1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
1. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
  2. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
- B. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
1. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

### 1.8 MISCELLANEOUS SUBMITTALS:

- A. Material Safety Data Sheets: Process material safety data sheets as "product data." These are submitted for information purposes only.
- B. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
- C. Records of Actual Work: Furnish 4 copies of records of actual work, one of which will be returned for inclusion in the record documents as specified in section "Project Closeout".
- D. Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Owner's Representative's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.
- E. Closeout Submittals: Refer to section "Project Closeout" and to individual sections of these specifications for specific submittal requirements of project closeout information.
- F. Record Documents: Furnish set of original documents as maintained on the project site. Along with original marked-up record drawings provide 2 photographic copies of marked-up drawings, which, at the Contractor's option, may be reduced to not less than half size.



### 1.9 OWNER'S REPRESENTATIVE'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Owner's Representative will review each submittal, mark to indicate action taken, and return promptly.
  1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Owner's Representative will stamp each submittal with a uniform, action stamp. The Owner's Representative will mark the stamp appropriately to indicate the action taken, as follows:
  1. Final Unrestricted Release: When the Owner's Representative marks a submittal "Approved," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
  2. Final-But-Restricted Release: When the Owner's Representative marks a submittal "Approved as Noted," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
  3. Returned for Resubmittal: When the Owner's Representative marks a submittal "Not Approved, Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
    - a. Do not use, or allow others to use, submittals marked "Not Approved, Revise and Resubmit" at the Project Site or elsewhere where Work is in progress.
  4. Received - Not Reviewed: When the Owner's Representative marks a submittal "Received - Not Reviewed" this acknowledges that the submittal has been received. This action applies to materials that are to be submitted for information purposes only, and where no review or action by the Owner's Representative is required.
  5. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Owner's Representative will return the submittal marked "Action Not Required."

END OF SECTION 01301



## SECTION 01503 - TEMPORARY FACILITIES - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Water service and distribution.
  - 2. Temporary electric power and light.
  - 3. Temporary heat.
  - 4. Ventilation.
  - 5. Telephone service.
  - 6. Sanitary facilities, including drinking water.
- C. Support facilities include, but are not limited to, the following:
  - 1. Field offices and storage sheds (if needed.)
  - 2. Temporary enclosures.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Temporary fire protection.
  - 2. Barricades, warning signs, and lights.

#### 1.3 DESCRIPTION OF REQUIREMENTS:

- A. General: Provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.

#### 1.4 SUBMITTALS

- A. Before the Start of Work: Submit the following to the Owner's Representative for review. Begin no work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.
  - 1. Hot water heater: Submit manufacturers name, model number, size in gallons (liters), heating capacity, power requirements.
  - 2. Decontamination Unit Sub-panel: Submit product data.
  - 3. Ground Fault Circuit Interrupters (GFCI): Submit product data.
  - 4. Lamps and Light Fixtures: Submit product data.



5. Temporary Heating Units: Provide product data.
6. Temporary Cooling Units: Provide product data and installation instructions.
7. Self Contained Toilet Units: Provide product data and name of sub-contractor to be used for servicing self contained toilets. Submit method to used for servicing.
8. Fire Extinguishers: Provide product data. Submit schedule indicating location at job site and compliance with NFPA 10 and NFPA 241.
9. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
10. Implementation and Termination Schedule: Prior to mobilization, submit a schedule indicating implementation and termination of each temporary utility.

### 1.5 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  1. Building code requirements.
  2. Health and safety regulations.
  3. Utility company regulations.
  4. Police, fire department, and rescue squad rules.
  5. Environmental protection regulations.
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
- C. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- D. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

### 1.6 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.



## PART 2 PRODUCTS

### 2.1 MATERIALS AND EQUIPMENT

- A. General: Provide new materials and equipment. If acceptable to the Owner's Representative, the Contractor may use undamaged, previously used materials and equipment in serviceable condition. Provide materials and equipment suitable for use intended.
- B. Lumber and Plywood:
  - 1. For job-built temporary offices, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
- C. Scaffolding: Provide scaffolding, ladders and/or staging, etc. as necessary to accomplish the work of this contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of scaffolding shall comply with applicable OSHA provisions.
  - 1. Equip rungs of metal ladders, etc. with an abrasive non-slip surface.
  - 2. Provide a nonskid surface on scaffold surfaces subject to foot traffic.

### 2.2 WATER SERVICE

- A. Water: Provide potable water approved by local health authorities.
- B. Temporary Water Service Connection: After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment. Provide separate hoses and/or pumps for shower water and amended water, without the possibility of cross connection.
- C. Water Hoses: Provide, heavy-duty, abrasion-resistant, flexible hoses in diameters and lengths necessary to adequately serve temporary facilities, and with a pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
  - 1. Provide water into each work area and to each Decontamination Unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.
- D. Hot Water Heater: Provide UL rated minimum 40 gallon (150 liters) electric hot water heater to supply hot water for the Decontamination Unit shower. Activate from 30 amp circuit breaker located within the Decontamination Unit subpanel. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with type L copper. Drip pans shall consist of a 12" X 12" X 6" (30 cm. X 30 cm. X 15 cm) deep pan, made of 19 gauge galvanized steel, with handles. A 3-quart (3 liter) kitchen saucepan may be substituted for this purpose. Drip pan shall be securely fastened to the hot water heater with bailing wire or similar material. Wiring of the hot water heater shall be in compliance with NEMA, NECA, and UL standards.

### 2.3 ELECTRICAL SERVICE:

- A. General: Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service.
- B. Temporary Power: Provide service to Decontamination Unit subpanel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the buildings main distribution panel.



Subpanel and disconnect shall be sized and equipped to accommodate electrical equipment required for completion of the work.

1. Connection to the building's main distribution panel is to be made by an appropriate licensed electrician
- C. Voltage Differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.
- D. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters (GFCI), reset button, and pilot light for connection of power tools and equipment.
  1. Locate GFCI's exterior to Work Area so that circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for circuits to be used for any purpose in work area, decontamination units, exterior, or as otherwise required by national electrical code, OSHA or other authority. Locate in panel exterior to Work Area.
- E. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- F. Lamps and Light Fixtures: Provide general service incandescent lamps or fluorescent lamps of wattage indicated or required for adequate illumination as required by the work or this section. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide vapor tight fixtures in work area and decontamination units. Provide exterior fixtures where fixtures are exposed to the weather or moisture.

#### 2.4 TEMPORARY HEAT:

- A. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the fuel being consumed. Use steam or hot water radiant heat where available, and where not available use electric resistant fin radiation supplied from a branch circuit with ground fault circuit interrupter.

#### 2.5 TEMPORARY STRUCTURES

- A. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

#### 2.6 FIRST AID

- A. First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.

#### 2.7 FIRE EXTINGUISHERS:

- A. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.



- B. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

### PART 3 EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. General: Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. Require that personnel accomplishing this work be licensed as required by local authority for the work performed.
- D. Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.
- E. Restore modified building systems in a like operational condition or industry acceptable condition which ascertains the safety of the system and structure.

#### 3.2 SCAFFOLDING:

- A. During the erection and/or moving of scaffolding, care must be exercised so that the polyethylene floor covering is not damaged.
- B. Clean as necessary debris from non-slip surfaces.
- C. At the completion of abatement work clean construction aids within the work area, wrap in one layer of 6 mil (0.15 mm) polyethylene sheet and seal before removal from the Work Area.

#### 3.3 TEMPORARY UTILITY INSTALLATION

- A. General: If required, engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
  - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Charges associated with services provided by local utility company is the sole responsibility of the contractor.
- B. Water Service:
  - 1. Water connection (without charge) to Owner's existing potable water system is limited to one 3/4" (19 mm ) pipe-size connection, and a maximum flow of 10 g.p.m. (38 liters / minute) each to cold water supply. Supply hot and cold water to the Decontamination Unit in accordance with Section 01563.



- a. Maintain hose connections and outlet valves in leak-proof condition. Where finish work below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize the possibility of water damage. Drain water promptly from pans as it accumulates.
2. Sterilization: Sterilize temporary water piping prior to use.
- C. Electrical Service:
  1. Lock out: Lock out all existing power to or through the work area as described below. Unless specifically noted otherwise existing power and lighting circuits to the Work Area are not to be used. All power and lighting to the Work Area and Decontamination facilities are to be provided from temporary electrical panel described below.
    - a. Comply with requirements to OSHA 29 CFR 1910.147 the control of hazardous energy lock out/tag out.
    - b. Lock out power to Work Area by switching off breakers serving power or lighting circuits in work area. Tagout breakers with notation "DANGER circuit being worked on". Lock panel and have all keys under control of authorized person who has locked pane.
    - c. Lock out power to circuits running through Work Area wherever possible by switching off and locking all breakers serving these circuits. Tag out breakers with notation "DANGER circuit being worked on". Sign and date danger tag. Lock panel and supply keys to authorized person who has applied locks. If circuits cannot be shut down for any reason, label at intervals of 4-feet" (1.25 meter) on center with signs reading, "DANGER live electric circuit. Electrocutation hazard." All asbestos abatement work in the vicinity of the live circuit is to be performed dry. All necessary notifications and procedures for dry removal are to be followed.
    - d. Lock out power to electrical equipment located in the work area, and to any fans or other equipment that is going to be worked on.
  2. Temporary Electrical Panel: Provide temporary electrical panel sized and equipped to accommodate electrical equipment and lighting required by the work. Connect temporary panel to existing building electrical system. Protect with circuit breaker or fused disconnect. Panel is to be installed by an appropriate licensed electrician.
  3. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
  4. Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel. Do not use outlet type GFCI devices.
  5. Temporary Wiring: in the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide liquid tight enclosures or boxes for wiring devices.
  6. Number of Branch Circuits: Provide sufficient branch circuits as required by the work. Branch circuits are to originate at temporary electrical panel. At minimum provide the following:



- a. One Circuit for each HEPA filtered fan unit
  - b. For power tools and task lighting, provide one temporary 4-gang outlet in the following locations. Provide a separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).
  - c. One outlet in the work area for each 2500 square feet (225 square meters) of work area
  - d. One outlet at each decontamination unit, located in equipment room
7. 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use while conducting visual inspection and air sampling during the work as follows:
- a. One in each work area
  - b. One at clean side of each Decontamination Unit.
  - c. One at each exhaust location for HEPA filtered fan units
8. 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use for conducting visual inspection and final air sampling as set forth in Section 01711 Project Decontamination as follows:
- a. Five inside work area
  - b. Two outside work area in location designated by Owner's Representative
- D. Temporary Lighting:
1. Lock out: Lock out existing power to lighting circuits in Work Area as described in section 01526 Temporary Enclosures. Unless specifically noted otherwise existing lighting circuits to the Work Area are not to be used. All lighting to the Work Area and Decontamination facilities is to be provided from temporary electrical panel described above.
  2. Provide the following or equivalent where natural lighting or existing building lighting does not meet the required light level:
    - a. One 200-watt incandescent lamp per 1000 square feet (92.9 square meters) of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet (15.2 meters) . In stair ways and at ladder runs, provide one lamp minimum per story, located to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.
    - b. Provide lighting in areas where work is being preformed as required to supply a 100 foot candle (1,076 lumens/sq meter) minimum light level.
    - c. Provide lighting in any area being subjected to a visual inspection as required to supply a 100 foot candle (1,076 lumens/sq meter) minimum light level.
    - d. Provide lighting in the Decontamination Unit as required to supply a 50 foot candle (538 lumens/sq meter) minimum light level.
  3. Number of Lighting Circuits: Provide sufficient lighting circuits as required by the work. Lighting circuits are to originate at temporary electrical panel.
  4. Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.



- E. Temporary Heat:
1. General: Provide temporary heat where indicated or needed for performance of the Work.
  2. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel-oil heaters with individual space thermostatic control.
    - a. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.
  3. Maintain a minimum temperature of 70 degrees F (21 degrees C) where finished work has been installed.
  4. Maintain a minimum temperature of 75 degrees F (24 degrees C) in the shower of the decontamination unit.
  5. Maintain a minimum temperature of 65 degrees F (18 degrees C) in the Work Area at all times that work is going on. At all other times and at completion of removal work, but before start of reconstruction work, maintain a minimum temperature of 50 degrees F (10 degrees C).
- F. Temporary Utilities
1. Temporary Telephones: Provide temporary telephone service throughout the construction period for personnel engaged in construction activities. Install telephone on a separate line for each temporary office and first-aid station.
  2. Separate Telephone Lines: Provide additional telephone lines for the following:
    - a. Where an office has more than 2 occupants, install a telephone for each additional occupant or pair of occupants.
    - b. At each telephone, post a list of emergency telephone numbers.
- G. Sanitary Facilities:
1. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
    - a. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
  2. Provide separate facilities for male and female personnel.
  3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
  4. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.
    - a. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F (7.2 to 12.8 deg C).



### 3.4 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, field laboratories, storage sheds, and other temporary construction and support facilities for easy access.
  - 1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
  - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar materials.
  - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  - 4. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 sq. m) in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.

### 3.5 FIRE PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Owner's Representative.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
  - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires.
  - 4. Prohibit smoking within any building, structure, other enclosures or in hazardous fire-exposure areas.
  - 5. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to



inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

### 3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Unless the Owner's Representative requests that it be maintained longer, remove each temporary facility when the need has ended, when 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 the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities installed by the Contractor are the Contractor's property.
  - 2. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
    - a. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 01503



## SECTION 01513 - TEMPORARY PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

#### 1.2 MONITORING

- A. Continuously monitor and record the pressure differential between the Work Area and the building outside of the Work Area with a monitoring device incorporating a continuous recorder (e.g. strip chart).

#### 1.3 SUBMITTALS

- A. Before Start of Work: Submit design of pressure differential system to the Owner's Representative for review. Do not begin work until submittal is returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use. Include in the submittal at a minimum:
1. Number of HEPA filtered fan units required and the calculations necessary to determine the number of machines
  2. Description of projected air flow within Work Area and methods required to provide adequate air flow in all portions of the work area
  3. Anticipated pressure differential across Work Area enclosures
  4. Description of methods of testing for correct air flow and pressure differentials
  5. Manufacturer's product data on the HEPA filtered fan units to be used
  6. Location of the machines in the Work Area
  7. Method of supplying adequate power to the machines and designation of building electrical panel(s) which will be supplying the power.
  8. Description of work practices to insure that airborne fibers travel away from workers
  9. Manufacturer's product data on equipment used to monitor pressure differential between inside and outside of Work Area.
  10. Manufacturer's product data on auxiliary generator to be used
  11. Manufacturer's product data on auxiliary power switch to be used
  12. Schematic diagram of power and auxiliary power supply to HEPA filtered fan units
- B. On a weekly basis: Submit printout from pressure differential monitoring equipment. Mark printout with date and start of time for each day. Use printout paper that indicates elapsed time in intervals no greater than hours. Indicate on each days record times of starting and stopping



abatement work, type of work in progress, breaks for lunch or other purposes, periods of stop work, and filter changes. Cut printout into segments by day, attach to 8 ½" by 11" paper. Label with project name, contractors name and date.

#### 1.4 QUALITY ASSURANCE:

- A. Monitor pressure differential at Personnel and Equipment Decontamination Units with a differential pressure meter equipped with a continuous recorder. Meter shall be equipped with a warning buzzer which will sound if pressure differential drops below 0.02 inch of water.

## PART 2 - PRODUCTS

### 2.1 HEPA FILTERED FAN UNITS:

- A. General: Supply the required number of HEPA filtered fan units to the site in accordance with these specifications. Use units that meet the following requirements.
- B. Cabinet: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are:
  - 1. Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance
  - 2. Arranged to provide access to and replacement of all air filters from intake end
  - 3. Mounted on casters or wheels
- C. Fans: Rate capacity of fan according to usable air-moving capacity under actual operating conditions.
- D. HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.
  - 1. Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.
  - 2. Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 um dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions.
  - 3. Provide filters that are marked with: the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.
  - 4. Pre-filters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. Provide units with the following pre-filters:
    - a. First-stage pre-filter: low-efficiency type (e.g., for particles 100 um and larger)
    - b. Second-stage (or intermediate) filter: medium efficiency (eg., effective for particles down to 5 um)



- c. Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps.
- E. Instrumentation: Provide units equipped with:
  - 1. Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed
  - 2. A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge affixed near the gauge for reference, or the Magnehelic reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (CFM) (Liters / Second (LPS)) air delivery at that point
  - 3. Elapsed time meter to show the total accumulated hours of operation
- F. Safety and Warning Devices: Provide units with the following safety and warning devices:
  - 1. Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter
  - 2. Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge
  - 3. Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e., filter overloading) (yellow), and too low of a pressure drop (i.e., rupture in HEPA filter or obstructed discharge) (red)
  - 4. Audible alarm if unit shuts down due to operation of safety systems
- G. Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet are to be grounded.
- H. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
- I. Manufacturer: Subject to compliance with requirements, provide products of the following:
  - 1. HEPA filtered Fan Units: The following machines are standard 2000 CFM machines used in typical asbestos abatement jobs.
  - 2. This listing is not to be construed as being prescriptive for the project.

Aerospace America, Inc.  
 900 Truman Parkway  
 P.O. Box 189  
 Bay City, Michigan 48707  
 (517) 684-2121

"Aero-Clean 2000"

Abatement Technologies  
 3305 Breckinridge Blvd. #118  
 Deluth, GA 30136  
 (800) 634-9091 or (404) 925-2761

"HEPA-AIRE 1990 and HEPA-AIRE 2000"

Global Consumer Services, Inc.  
 4615-1U E. Industrial St.  
 Sims Valley, CA 93063



(805) 579-0230

M-Tec Corp.  
1300 W. Steel Rd.  
Unit #2  
Morrisville, PA 19067  
(215) 295-8208

Micro-Trap  
Alumina II

3. Large Capacity: The following are large capacity 5000-6000 CFM machines used on large asbestos abatement jobs.

Abatement Technologies  
3305 Breckinridge Blvd. #118  
Deluth, GA 30136  
(800) 634-9091 or (404) 925-2761

"HEPA-AIRE 5000"  
model H5000C

### PART 3 - EXECUTION

#### 3.1 PRESSURE DIFFERENTIAL ISOLATION

- A. Isolate the Work Area from all adjacent areas or systems of the building with a Pressure Differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the Work Area.
- B. Relative Pressure in Work Area: Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building envelope. This pressure differential when measured across any physical or critical barrier must equal or exceed a static pressure of:
- 0.02 inches (0.5 mm) of water.
- C. Accomplish the pressure differential by exhausting a sufficient number of HEPA filtered fan units from the work area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the Work Area. Determine the number of units required for pressure isolation by the following procedure:
- Establish required air circulation in the work area, personnel and equipment decontamination units.
  - Establish isolation by increased pressure in adjacent areas or as part of seals where required.
  - Exhaust a sufficient number of units from the work area to develop the required pressure differential.
  - The required number of units is the number determined above plus one additional unit.
  - Vent HEPA filtered fan units to outside of building unless authorized in writing by Owner's Representative.



6. Vent each HEPA filtered fan unit to inlet of second unit. Vent second unit to a controlled area in the building. Insure that controlled area is isolated from balance of building by critical barriers at all times that units are in operation.
  7. Mount units to exhaust directly or through disposable ductwork.
  8. Use only new ductwork except for sheet metal connections and elbows.
  9. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit.
  10. Use spiral wire-reinforced flex duct in lengths not greater than 50 feet (15 meters).
- D. Isolation of elevators, stair towers, and return air intakes: Erect seals with an air space at doors to elevators and stair towers. Pressurize this space with HEPA-filtered air so that it is at a pressure greater than either the Work Area elevator shaft or stair tower.
1. Fabricate seal by first sealing door with duct tape and 6 mil (0.15 mm) polyethylene. Construct a barrier from ½" (13mm) CDX plywood supported by 2" X 4" (51 mm x 102 mm) wood studs at 16" (410 mm) on centers. Space face of barrier a minimum of 3" (76 mm) from face of door. Seal barrier with 6 mil (0.15 mm) sheet plastic and duct tape.
  2. Use plywood and framing lumber that is treated to be fire resistant.
  3. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.02 inches (0.5 mm) of water higher in static pressure than any adjacent space.
  4. Locate HEPA filtered fan unit outside of work area. Fabricate a manifold as required to distribute air to individual spaces to be isolated. Provide relief venting at unit as required to prevent shut down due to low air flow while still maintaining required air pressure.

### 3.2 AIR CIRCULATION IN THE WORK AREA:

- A. Air Circulation: For purposes of this section air circulation refers to either the introduction of outside air to the Work Area or the circulation and cleaning of air within the Work Area.
- B. Air circulation in the Work Area is a minimum requirement intended to help maintain airborne fiber counts at a level that does not significantly challenge the work area isolation measures. The Contractor may also use this air circulation as part of the engineering controls in the worker protection program.
- C. Determining the Air circulation Requirements: The air flow volume (cubic meters per minute) exhausted (removed) from the workplace must exceed the amount of makeup air supplied to the enclosure. Provide a fully operational air circulation system supplying a minimum of the following air circulation rate:
  1. 4 air changes per hour
- D. Determine Number of Units needed to achieve required air circulation according to the following procedure:
  1. Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total air circulation requirement in cubic feet per minute (CFM) for the work area by dividing this volume by 60 and multiplying by the air change rate.
  2. Air Circulation Required in Cubic Feet of Air per Minute (CFM) =



$$\frac{\text{Volume of work area (cu. ft.)}}{60 \text{ (minutes per hour)}} \times \text{Number of air changes per hour}$$

3. Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

### 3.3 EXHAUST SYSTEM:

- A. Pressure differential isolation and air circulation and pressure differential in the Work Area are to be accomplished by an exhaust system as described below.
  1. Exhaust all units from the Work Area to meet air circulation requirement of this section.
  2. Location of HEPA Filtered Fan Units: Locate fan unit(s) so that makeup air enters work area primarily through decontamination facilities and traverses Work Area as much as possible. This may be accomplished by positioning the HEPA filtered fan unit(s) at a maximum distance from the worker access opening or other makeup air sources.
  3. The end of the unit or its exhaust duct should be placed through an opening in the plastic barrier or wall covering. Seal plastic around the unit or duct with tape.
  4. Vent to Outside of Building, unless authorized in writing by the Owner's Representative.
  5. Air Handling Unit Exhaust: The exhaust plume from air handling units should be located away from adjacent personnel and intakes for HVAC systems.
  6. Decontamination Units: Arrange Work Area and decontamination units so that the majority of make up air comes through the Decontamination Units. Use only personnel or equipment Decontamination Unit at any time and seal the other so that make up air passes through unit in use.

### 3.4 AIR CIRCULATION IN DECONTAMINATION UNITS:

- A. Pressure Differential Isolation: Continuously maintain the pressure differential required for the work area in the:
  1. Personnel Decontamination Unit: across the Shower Room with the Equipment Room at a lower pressure than the Clean room.
  2. Equipment Decontamination Unit: Across the Holding Room with the Wash Room at a lower pressure than the Clean Room.
- B. Air Circulation: Continuously maintain air circulation in Decontamination Units at same level as required for Work Area.
- C. Air Movement: Arrange air circulation through the Personnel Decontamination Unit so that it produces a movement of air from the Clean Room through the Shower Room into the Equipment Room. At each opening, the air flow velocity must be sufficient to provide visible indications of air movement into the work area.. The velocity of air flow within the enclosure must be adequate to remove airborne contamination from each worker's breathing zone without disturbing the asbestos-containing material on surfaces.



### 3.5 USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM:

- A. General: Each unit shall be serviced by a dedicated minimum 115V-20A circuit with ground fault circuit interrupter (GFCI) supplied from temporary power supply installed under requirements of Section 01503 "Temporary Facilities." Do not use existing branch circuits to power fan units.
- B. Air Flow Tests: Air flow patterns will be checked before removal operations begin, at least once per operating shift and any time there is a question regarding the integrity of the enclosure. The primary test for air flow is to trace air currents with smoke tubes or other visual methods. Flow checks are made at each opening and at each doorway to demonstrate that air is being drawn into the enclosure and at each worker's position to show that air is being drawn away from the workers location and toward the HEPA filtration unit.
- C. Demonstrate Condition of Equipment for each HEPA filtered fan unit and pressure differential monitoring equipment including proper operation of the following:
1. Squareness of HEPA Filter
  2. Condition of Seals
  3. Proper operation of all lights
  4. Proper operation of automatic shut down if exhaust is blocked
  5. Proper operation of alarms
  6. Proper operation of Magnehelic gauge
  7. Proper operation and calibration on pressure monitoring equipment
- D. Demonstrate Operation of the pressure differential system to the Owner's Representative will include, but not be limited to, the following:
1. Plastic barriers and sheeting move lightly in toward Work Area,
  2. Curtain of decontamination units move lightly in toward Work Area,
  3. There is a noticeable movement of air through the Decontamination Unit.
  4. Use smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room.
  5. Use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed.
  6. Use a differential pressure meter or manometer to demonstrate the required pressure differential at every barrier separating the Work Area from the balance of the building, equipment, ductwork or outside.
  7. Modify the Pressure Differential System as necessary to demonstrate successfully the above.
- E. Use of System During Abatement Operations:
1. Start fan units before beginning work (before any asbestos-containing material is disturbed). After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete. Do not turn off units at the end of the work shift or when abatement operations temporarily stop.



2. Monitoring Pressure Within the Enclosure: After the initial air flow patterns have been checked, the static pressure must be monitored within the enclosure. Monitoring may be made using manometers, pressure gauges, or combinations of these devices. It is recommended that they be attached to alarms and strip chart recorders
  3. Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the Owner's Representative in writing. Supply sufficient pre-filters to allow frequent changes.
  4. Start abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again.
  5. Corrective Actions: If the manometers or pressure gauges demonstrate a reduction in pressure differential below the required level, work should cease and the reason for the change investigated and appropriate changes made. The air flow patterns should be retested before work begins again.
  6. At completion of abatement work, allow fan units to run as specified under section 01711, to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the Work Area with clean makeup air. The units may be required to run for a longer time after decontamination, if dry or only partially wetted asbestos material was encountered during any abatement work.
- F. Dismantling the System:
1. When a final inspection and the results of final air tests indicate that the area has been decontaminated, fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6 mil (0.15 mm) polyethylene to prevent environmental contamination from the filters.

END OF SECTION - 01513



## SECTION 01526 - TEMPORARY ENCLOSURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this section.

#### 1.2 SUBMITTALS:

- A. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or stamped "Received - Not Reviewed".
  - 1. Spray Cement: Submit following:
    - a. Product description including major components and solvents.
    - b. Manufacturer's installation instructions. Indicate portions applicable to the project.
  - 2. Sheet Plastic: For fire retardant plastic submit test reports on NFPA 701 test.
  - 3. Signs: Submit samples of signs to be used.
- B. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal has been "Received - Not Reviewed".
  - 1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for the following:
    - a. Spray Cement.

### PART 2 - PRODUCTS

#### 2.1 SHEET PLASTIC:

- A. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.
- B. Flame Retardant Polyethylene Sheet: 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 size possible to minimize seams, 6.0 mil (0.15 mm) thick frosted or black as indicated.



## 2.2 MISCELLANEOUS MATERIALS:

- A. Duct Tape: Provide duct tape in 2 inch or 3 inch (50 mm or 75 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.
- B. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

## PART 3 - EXECUTION

### 3.1 SEQUENCE OF WORK:

- A. Carry out work of this section sequentially. Complete each of the following activities in accordance with requirements before proceeding to the next.
  - 1. Provide emergency exits and emergency lighting.
  - 2. Control access
  - 3. Provide respiratory and worker protection.
  - 4. Provide Critical Barriers.
  - 5. Prepare Area.
  - 6. Provide Primary Barriers.
  - 7. Provide Isolation Areas as required.
  - 8. Provide Secondary Barrier.

### 3.2 GENERAL:

- A. Work Area: the location where asbestos abatement work occurs. The Work Area is a variable of the extent of work of the Contract. It may be a portion of a room, a single room, or a complex of rooms. A "Work Area" is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the asbestos control work.
- B. Completely isolate the Work Area from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the procedures indicated in Section 01711. Perform all such required cleaning or decontamination at no additional cost to owner.
- C. Construct enclosures to provide an air-tight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Construct enclosures to be both airtight and watertight except for those openings designed to provide entry and/or air flow control.
- D. Size: Construct enclosure with sufficient volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.
- E. Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).



- F. Structural Integrity: The walls, ceilings and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.
- G. Barrier Supports: Provide frames as necessary to support all unsupported spans of sheeting.
- H. Openings: It is not necessary that the structure be airtight; openings may be designed to direct air flow. Such openings are to be located at a distance from active removal operations. They are to be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost, they are to be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits are to be controlled by an airlock or a vestibule.
- I. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation.
- J. Areas Within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur are to be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.
- K. Removing Mobile Objects: Clean movable objects and remove them from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be asbestos contaminated and are to be either cleaned with amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as asbestos-contaminated waste.
- L. Disabling HVAC Systems: The power to the heating, ventilation, and air conditioning systems that service the regulated area must be deactivated and locked out. All ducts, grills, access ports, windows and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.
- M. Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. A lock and tag shall be placed on each breaker used to de-energize circuits and equipment with notation "DANGER circuit being worked on". Lock panel and have all keys under control of authorized person who has applied the locks.
- N. Lockout power to circuits running through work area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of authorized person who applied locks. If circuits cannot be shut down for any reason, label at intervals 4 feet (1.22 m) on center with signs reading, "DANGER live electric circuit. Electrocutation hazard." Label circuits in hidden locations but which may be affected by the work in a similar manner.
- O. Inspection Windows: Install inspection windows in locations as directed by the Owner's Representative. Each inspection window is to have a 24 inch X 24 inch viewing area fabricated from 1/4 inch acrylic or polycarbonate sheet. Install window with top at 6 feet-6 inches (1.98 m) above floor height in a manner that provides unobstructed vision from outside to inside of the Work Area. Protect window from damage from scratching, dirt or any coatings used during the work. A sufficient number of windows are to be installed to provide observation of all portions of the Work Area that can be made visible from adjacent areas. Inspection windows that open into uncontrolled area are to be covered with a removable plywood hatch secured by lock and key. Provide keys to Owner's Representative for all such locks.



### 3.3 EMERGENCY EXITS:

- A. Provide emergency exits and emergency lighting as set forth below:
1. Emergency Exits: At each existing exit door from the Work Area provide the following means for emergency exiting:
  2. Arrange exit door so that it is secure from outside the Work area but permits exiting from the Work Area.
  3. Mark outline of door on Primary and Critical Barriers with luminescent paint at least 1 inch wide. Hang a razor knife on a string beside outline. Arrange Critical and Primary barriers so that they can be easily cut with one pass of razor knife. Paint words "EMERGENCY EXIT" inside outline with luminescent paint in letters at least one foot high and 2 inches wide.
  4. Provide lighted EXIT sign at each exit.

### 3.4 CONTROL ACCESS:

- A. Isolate the Work Area to prevent entry by building occupants into Work Area or surrounding controlled areas. Accomplish isolation by the following:
1. Submit to Owner's Representative a list of doors and other openings that must be secured to isolate Work Area. Include on list notation if door or opening is in an indicated exit route.
  2. After receiving written authorization from the Owner's Representative lock all doors into Work Area, or, if doors cannot be locked, chain shut. Notify the local fire department of the list of doors/or other openings which must be chained or otherwise secured shut. Cover any signs that direct emergency exiting, either outside or inside of Work Area, to locked doors. Do not obstruct doors required for emergency exits from Work Area or from building.
  3. After receiving written authorization from the Owner's Representative, construct partitions or closures across any opening into Work Area. Partitions are to be a minimum of 8 feet high.
  4. Fabricate partitions from 2 inch X 4 inch wood studs with ½ inch plywood on both faces. Brace at intervals of 4 feet on center.
  5. Replace passage sets on doors required for exiting from Work Area with temporary locksets for duration of the project. Use entry type locksets that are key lockable from one side and always operable from inside. Install locksets with key side in stair tower and escape side on Work Area side. Provide one key to Owner and maintain one key in clean room of decontamination unit. After meeting Contractor release criteria set forth in Section 01711 Project Decontamination, reinstall original passage sets and adjust for proper operation.
- B. Locked Access: Arrange Work Area so that the only access into Work Area is through lockable doors to personnel and equipment decontamination units.
1. Install temporary doors with entrance type locksets that are key lockable from the outside and always unlocked and operable from the inside. Do not use deadbolts or padlocks.
  2. Provide one key for each door to Owner, and Owner's Representative and maintain one key in clean room of decontamination unit (3 total).



- C. Demarcation. Demarcate the regulated area in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne concentrations of asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area.
- D. Access. Limit access to regulated areas to authorized persons as defined by OSHA, and to the Owner, Owner’s Representative, Project Administrator or a representative authorized by one of these entities.
- E. Provide Warning Signs at each locked door leading to Work Area reading as follows:
  - 1. Print text in both English and Spanish

**Legend**

**Notation**

KEEP OUT	3 inch (77 mm) Sans Serif Gothic or Block
CONSTRUCTION	1 inch (25.4 mm) Sans Serif Gothic or Block
WORK AREA	1 inch (25.4 mm) Sans Serif Gothic or Block
PROTECTIVE CLOTHING REQUIRED	14 Point Gothic
BEYOND THIS POINT	

- 2. Immediately inside door and outside critical barriers post an approximately 20 inch by 14 inch (508 mm X 356 mm) manufactured caution sign displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

**Legend**

DANGER  
 ASBESTOS  
 CANCER AND LUNG DISEASE HAZARD  
 AUTHORIZED PERSONNEL ONLY  
 RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

- 3. Provide spacing between respective lines at least equal to the height of the respective upper line.

**3.5 ALTERNATE METHODS OF ENCLOSURE:**

- C. Alternate methods of containing the Work Area may be submitted to the Owner’s Representative for approval. Do not proceed with any such method(s) without prior written approval of the Owner’s Representative.

**3.6 RESPIRATORY AND WORKER PROTECTION:**

- A. Before proceeding beyond this point in providing Temporary Enclosures:
  - 1. Provide Worker Protection per Section 01560
  - 2. Provide Respiratory Protection per Section 01562
  - 3. Provide Personnel Decontamination Unit per Section 01563



### 3.7 CRITICAL BARRIERS:

- A. Completely Separate the Work Area from other portions of the building, and the outside by closing all openings with sheet plastic barriers at least 6 mil in thickness, or by sealing cracks leading out of Work Area with duct tape.
- B. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with duct tape alone or with polyethylene sheeting at least 6 mil in thickness, taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed. Take care in sealing of lighting fixtures to avoid melting or burning of sheeting.
- C. Provide Sheet Plastic barriers at least 6 mil (0.15 mm) in thickness as required to seal openings completely from the Work Area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.
- D. Mechanically Support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic. Following are acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the Owner's Representative.

### 3.8 PREPARE AREA:

- A. Scaffolding: If fixed scaffolding is to be used to provide access HEPA vacuum and wet clean area prior to scaffolding installation.
- B. Remove all electrical and mechanical items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, etc. which cover any part of the surface to be worked on with the work.
- C. Remove all general construction items such as cabinets, casework, door and window trim, moldings, ceilings, trim, etc., which cover the surface of the work as required to prevent interference with the work. Clean, decontaminate and reinstall all such materials, upon completion of all removal work with materials, finishes, and workmanship to match existing installations before start of work.
- D. Clean all contaminated furniture, equipment, and or supplies with a HEPA filtered vacuum cleaner or by wet cleaning, as specified in Section 01712 Cleaning and Decontamination Procedures, prior to being moved or covered. All equipment furniture, etc. is to be deemed contaminated unless specifically declared as uncontaminated on the drawings or in writing by the Owner's Representative.
- E. Clean All Surfaces In Work Area with a HEPA filtered vacuum or by wet wiping prior to the installation of primary barrier.
- F. Cleaning and Sealing Surfaces: After cleaning with water and a HEPA vacuum, surfaces of stationary objects should be covered with two layers of plastic sheeting. The sheeting should be secured with duct tape or an equivalent method to provide a tight seal around the object.

### 3.9 PRIMARY BARRIER

- A. Protect building and other surfaces in the Work Area from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier as described below.



1. Sheet Plastic: Protect surfaces in the Work Area with two (2) layers of plastic sheeting on floor and walls. Perform work in the following sequence.
  - a. All seams in the sheeting should overlap, be staggered and not be located at corners or wall-to-floor joints.
  - b. Cover Floor of Work Area with 2 individual layers of clear polyethylene sheeting, each at least 6 mil in thickness, turned up walls at least 12 inches. Form a sharp right angle bend at junction of floor and wall so that there is no radius which could be stepped on causing the wall attachment to be pulled loose. Both spray-glue and duct tape all seams in floor covering. Locate seams in top layer six feet from, or at right angles to, seams in bottom layer. Install sheeting so that top layer can be removed independently of bottom layer.
  - c. Cover Carpeting with three (3) layers of polyethylene sheeting at least 6 mil in thickness. Place corrugated cardboard sheets between the top and middle layers of polyethylene.
  - d. Cover Sheet Plastic in areas where scaffolding is to be used with a single layer of ½ inch CDX plywood or 1/4 inch tempered hardboard. Wrap edges and corners of each sheet with duct tape. At completion of abatement work wrap plywood or hardboard with 2 layers of 6 mil polyethylene and move to next Work Area or dispose of as an asbestos-contaminated waste material in accordance with specification.
  - e. Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are covered with plastic, provide 3/4 inch exterior grade plywood treads securely held in place, over plastic. Do not cover rungs or rails with any type of protective materials.
  - f. Repair of Damaged Polyethylene Sheeting: Remove and replace plastic sheeting which has been damaged by removal operations or where seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry.

### 3.10 ISOLATION AREA:

- A. Maintain isolation areas between the Work Area and adjacent building area:

### 3.11 STOP WORK:

- A. If the Critical or Primary barrier falls or is breached in any manner stop asbestos removal work immediately and comply with "Stop Work" requirements of Section 01013 "Summary of Work - Asbestos Abatement". Do not start work until authorized in writing by the Owner's Representative.

### 3.12 EXTENSION OF WORK AREA:

- A. Extension of Work Area: If the Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add affected area to the Work Area, enclose it as



required by this Section of the specification and decontaminate it as described in Section 01711  
Project Decontamination.

**3.13 SECONDARY BARRIER:**

- A. Secondary layer of plastic as a drop cloth to protect the primary layer from debris generated by the asbestos abatement work is specified in the appropriate work sections.

**END OF SECTION - 01526**



## SECTION 01527 - REGULATED AREAS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Respiratory Protection: is specified in Section 01562 "Respiratory Protection"
- B. Wet Decontamination Facilities: are described in Section 01563 "Decontamination Units."

#### 1.3 DESCRIPTION OF WORK:

- A. Work of this section consists of preparing a Regulated Area for work of the following specification sections only. Do not use procedures set forth in this section in connection with any other work.
  - 1. Section 01046 Cutting & Patching Asbestos Containing Materials
  - 2. Section 01528 Entry Into Controlled Areas
  - 3. Section 01529 Mini Enclosures and Glovebags
  - 4. Section 01712 Cleaning and Decontamination Procedures
  - 5. Section 02083 Disturbance of ACM During O&M Work
  - 6. Section 15254 Repair of Insulation and Lagging

#### 1.4 SUBMITTALS

- A. Before the Start of Work: Submit the following to the Designer for review. Begin no work until these submittals are returned with Designer's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.
  - 1. HEPA Filtered Vacuum Cleaners: Submit product data.
  - 2. Signs: Submit samples of each type of sign to be used.
  - 3. Warning Tape: Submit samples.

### PART 2 - EQUIPMENT

#### 2.1 PRODUCTS

- A. HEPA Filter Vacuum Cleaners:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:



Nilfisk of America, Inc.  
 225 Great Valley Parkway  
 Malvern, PA 19355  
 (800) 645-3475

HEPA filtered  
 Vacuums

Minuteman International  
 111 South Route 53  
 Addison, IL 60101  
 (708) 627-6900

Minuteman  
 HEPA Vacuums

Pullman-Holt (White) Corp.  
 PO Box 16647  
 Tampa, FL 33617  
 (813) 645-3475

HEPA Filtered  
 Vacuums

B. Plastic Sheet:

1. Plastic Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.

**PART 3 - EXECUTION**

**3.1 SECURING WORK AREA:**

- A. Secure work area from access by occupants, staff or users of the building. Accomplish this where possible, by locking doors, windows, or other means of access to the area, by scheduling work for periods of time that the building is unoccupied, or by constructing temporary wood stud and plywood barriers.

**3.2 DEMARCATION OF REGULATED AREA:**

- A. Demarcation. Demarcate the Regulated Area with a sheet plastic drop cloth, signs and barrier tape. Configure the regulated area in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne concentrations of asbestos.
  1. Drop Cloth: Cover floor in vicinity of Work Area and six (6) feet (1.82 meters) beyond, with 6 mil (0.15 mm) polyethylene drop sheet. Where work is adjacent to wall, extend drop sheet up wall and secure at ceiling with duct tape. This drop sheet demarcates the boundary of the Regulated Area.
  2. Signs: Post warning signs that carry the following legends in both English and Spanish:
    - a. First Sign: Provide warning signs at each locked door leading to the controlled area reading as follows:

Legend	Notation
KEEP OUT	3 inch (76.2 mm) Block



- b. Second Sign: Immediately inside the locked door and outside the controlled area post an approximately 20 inch by 14 inch (508 mm x 356 mm) manufactured caution sign displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

**Legend:**

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING  
ARE REQUIRED IN THIS AREA

3. Barrier Tape: Where the controlled area is in a large area such as on part of a boiler room or open office area, delineate area with 3 inch (76.2 mm) wide polyethylene ribbon with the printed warning, "CAUTION ASBESTOS REMOVAL". Install this ribbon at between 3 and 4 feet (0.91 and 1.22 meters) above the floor.

### 3.3 SCHEDULING:

- A. Work may be carried out during normal working hours in those areas which can be completely secured by lockable doors from access by building occupants and staff, and which have HVAC equipment that can be shut down and locked off. Otherwise, work is to be carried out after building occupants and cleaning staff have left.

### 3.4 GENERAL PROCEDURES:

- A. The following precautions and procedures have application to work of this section. Workers must exercise caution to avoid release of asbestos fibers into the air:
1. Setup and management of the controlled area is to be under the supervision of a OSHA Competent Person as described in Section 01043 Project Coordination - Asbestos Abatement
  2. Before start of work comply with requirement for worker protection in section 01561, and respiratory protection in section 01562.
  3. Do not allow eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in the Regulated Area.
  4. Shut down any air handling equipment bringing air into or out of the Regulated Area.
  5. Clean any existing dust or debris from the floor and walls, and other surface in the immediate location of the work prior to commencing work by damp-mopping or by use of a High Efficiency Particulate Air (HEPA) filtered vacuum.



6. Cover floor in vicinity of Work Area and six (6) feet (1.82 meters) beyond, with 6 mil (0.15 mm) polyethylene drop sheet. Where work is adjacent to wall, extend drop sheet up wall and secure at ceiling with duct tape. This drop sheet demarcates the boundary of the Regulated Area.
7. Seal all openings, supply and exhaust vents, and convectors within ten (10) feet (3.05 meters) of the Work Area with 6 mil (0.15 mm) polyethylene sheeting secured and completely sealed with duct tape.
8. Perform the work per the appropriate specification section while on plastic drop sheet.
9. Immediately remove any asbestos-containing debris which collects on the drop sheet either by using a HEPA vacuum or by spraying with amended water or removal encapsulant, collecting with wet paper towels, placing in a disposal bag while still wet, and cleaning surface of plastic sheet with wet paper towels.
10. Complete the following at completion of work in an area before stepping off drop sheet
  - a. While standing on plastic sheet thoroughly HEPA vacuum ladder and any tools used and pass to worker standing off sheet.
  - b. Worker standing off the sheet HEPA vacuum thoroughly the worker standing on the sheet.
  - c. Worker on the sheet thoroughly HEPA vacuum all surfaces of the plastic sheet, bags, and any other items on the sheet including the worker's feet.
11. If moving to the next Work Area in the same secured area: Worker on the drop sheet is to don clean foot covers, placing each foot, in turn, off the sheet as the foot cover is put on. Remove clean foot covers at the next Work Area while standing on the sheet. Dispose of the used foot covers along with the plastic sheet at completion of work in that area. Do not reuse foot covers to move off the sheet.
12. If work day is complete or if next Work Area is in another secured area: all workers remove paper suits turning them inside out while doing so. The person on the sheet steps with each foot off the sheet as the foot covers are removed.
13. Fold sheet and all its contents toward the center.
14. Place the sheet in a properly labeled disposal bag.
15. Neck down the bag and collapse it with the HEPA vacuum.
16. Twist the bag shut, bend over and seal with duct tape by wrapping around bag neck at least 3 times.
17. Clean all surfaces of the Work Area by use of a HEPA filter vacuum until no visible residue remains.

At completion of work require all workers to complete wet decontamination procedures in accordance with Section 01560 Worker Protection - Asbestos-Abatement.

**END OF SECTION - 01527**



## SECTION 01528 - ENTRY INTO CONTROLLED AREAS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK:

- A. The provisions of this section apply when entry is required into an area where such entry could cause contamination of portions of the building and/or where respiratory or other worker protection measures are required.
- B. Unless authorized in writing by the Designer, the provisions of this section apply to only the following situations:
  - 1. Entry into the space above a suspended ceiling where there is exposed friable asbestos-containing fire proofing, visible asbestos-containing debris, or other friable asbestos-containing surfacing material when the ceiling tiles in an area no greater than 6 feet by 12 feet (1.83 x 3.66 meters) area to be removed.
  - 2. Entry through sealed access (access door, hatchway, locked door) into an area with friable asbestos-containing surfacing materials or visible debris.
- C. Worker Protection: Use procedures of this section only where a negative exposure assessment has been made for these procedures. Historic airborne fiber data demonstrate that personal airborne fiber counts in the breathing zone of those performing the work can be continuously maintained at less than 0.1 fibers per cubic centimeter can be used as a part of this assessment.
- D. Area Protection: Use procedures of this section only where historic airborne fiber data demonstrate that area samples in the work area can be continuously maintained at less than 0.01 fibers per cubic centimeter.

#### 1.3 SUBMITTALS:

- A. Before the Start of Work: Submit the following to the Designer for review. Begin no work until these submittals are returned with Designer's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.
  - 1. Historic Airborne Fiber Data: Submit airborne asbestos fiber count data from an independent air monitoring firm to demonstrate:
    - a. The ability to perform work of this section while maintaining an airborne fiber count below 0.1 fibers per cubic centimeter in the breathing zone of the individual performing the work.
    - b. The ability to perform work of this section while maintaining an airborne fiber count below 0.01 fibers per cubic centimeter in the work area.



2. Include the following data for each procedure required by the work:

- a. Date of measurements
- b. Operations monitored
- c. Sampling and analytical methods used and evidence of their accuracy
- d. Number, duration, and results of samples taken

**PART 2 - PRODUCTS (NOT APPLICABLE)**

**PART 3 - EXECUTION**

**3.1 REGULATED AREA:**

- A. Prior to beginning work in this area establish a regulated area as described in Section 01527 Regulated Areas.

**3.2 ACCESS THROUGH SUSPENDED CEILINGS:**

- A. Remove acoustical panels from ceiling suspension system using the following sequence:
  1. Follow worker protection procedures including disposable coveralls and respirators required by Section 01560, and Section 01562.
  2. Follow local area protection procedures of Section 01528. Spread layer of 6 mil (0.15 mm) polyethylene sheet on floor 6 feet (1.83 meters) further in extent than the size of the ceiling opening to be made.
  3. HEPA vacuum around edges of all panels to be removed.
  4. While holding nozzle of HEPA vacuum in vicinity slowly lift one edge of center ceiling panel. Immediately HEPA vacuum space at lifted edge. Lift entire panel straight up and HEPA vacuum all four sides.
  5. Place panel on top of adjacent ceiling.
  6. Place intake duct to HEPA Filtered Fan Unit per Section 01513 in space above ceiling and fasten in place. Operate machine continuously while ceiling is open.
  7. Note that the operation of the HEPA vacuum is intended to clean the air in the location of the work. As such the nozzle should be kept above the ceiling as much as possible and the canister on the floor.
  8. Climb to a position which permits access to the top of the ceiling adjacent to the removed panel.
  9. Working in the space above the ceiling, HEPA vacuum both sides of the ceiling panel first removed and hand it down into a 6 mil (0.15 mm) polyethylene bag for storage.



10. Remove loose material hanging from the friable asbestos- containing material with the suction from the HEPA vacuum.
11. Pass wand of operating HEPA vacuum through air between asbestos-containing material and top of ceiling.
12. HEPA vacuum the tops of all ceiling panels which are in reach.
13. Carefully HEPA vacuum the crack between the suspension system and ceiling panels from the top for all ceiling panels within reach.
14. Remove ceiling panels as required while constantly HEPA vacuuming all four edges of panel and suspension system.
15. Working in space above ceiling HEPA vacuum both sides on each panel removed and hand each down into a 6 mil (0.15 mm) polyethylene bag which is labeled as set forth is Section 02084.
16. Maintain HEPA vacuum in operation with nozzle above ceiling and exhaust at floor for the entire time that the ceiling is open and work is being done above the ceiling.
17. When above-ceiling work is complete replace ceiling panels.
18. HEPA vacuum worker's head, arm, and shoulders before climbing down from ceiling.
19. HEPA vacuum ladder while climbing down.
20. While standing on plastic sheet thoroughly HEPA vacuum ladder and pass it to person standing off sheet.

### 3.3 ENTRY INTO CONTROLLED AREAS:

- A. Use same procedure as above except that ceiling tiles do not need to be removed.
- B. If access is through a wall hatch or door, duct tape floor sheet to wall or threshold.
- C. If access is into large area such as crawl tunnel, comply with worker protection requirements but use HEPA vacuum only for work procedures in the area.

### 3.4 PERSONNEL DECONTAMINATION:

- A. At the end of all work change to a clean disposable coverall and leaving respirator in place proceed to a remote shower and decontaminate as required by Section 01560 Worker Protection - Asbestos Abatement.
- B. Complete dry decontamination procedures set forth in Section 01561 "Worker Protection - Repair & Maintenance."

**END OF SECTION 01528**



## SECTION 01560 - WORKER PROTECTION - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK:

- A. This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

#### 1.3 RELATED WORK SPECIFIED ELSEWHERE:

- A. Respiratory Protection: is specified in Section 01562.

#### 1.4 WORKER TRAINING:

- A. AHERA Accreditation: All workers are to be accredited as Abatement Workers as required by the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- B. State and Local License: All workers are to be trained, certified and accredited as required by the State of Delaware.
- C. Training - Class I: Train in accordance with 29 CFR 1926.1101. Provide training for all workers who will perform Class I operations that is the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).

#### 1.5 MEDICAL SURVEILLANCE:

- A. Provide a medical surveillance program for all employees who are:
  - 1. engaged in Class I, II and III work for a combined total of 30 or more days per year or,
  - 2. are exposed at or above the permissible exposure limit or excursion limit or,
  - 3. before an employee can be assigned to work requiring use of a respirator.
- B. Provide a medical surveillance program and physician's opinion before a respirator is assigned as required by 29 CFR 1910.134 and 29 CFR 1926.103(e)(10) .
- C. Provide medical examination that as a minimum meets OSHA requirements as set forth in 29 CFR 1926.1101. In addition, require that the physician provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.



## 1.6 SUBMITTALS:

- A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.
1. AHERA Accreditation: Submit copies of certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the EPA Interim Final Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
  2. State and Local License: Submit evidence that all workers have been trained, certified and accredited as required by the State of Delaware.
  3. Certificate Worker Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.
  4. Report from Medical Examination: conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each worker the following:
    - a. Name and Social Security Number
    - b. The physician's written opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;
    - c. Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and
    - d. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
    - e. A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure (29 CFR 1926.1101(m)).
    - f. A legible typed version of the physician's name, the physician's signature, and date of examination.
    - g. A statement that worker is able to wear and use the type respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.
  5. Notarized Certifications: Submit certification signed by an officer of the abatement contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.



## PART 2 EQUIPMENT

### 2.1 PROTECTIVE CLOTHING:

- A. General. Provide and require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed by 29 CFR 1926.1101 or for which a required negative exposure assessment is not produced, and for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet (7.5 linear meters or 3 square meters ) of TSI or surfacing ACM or PACM.
- B. Coveralls: Provide disposable full-body coveralls and disposable 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.
- C. Hard Hats: Provide head protectives (hard hats) as required by OSHA for all workers, and provide 4 spares for use by Owner's Representative, Project Administrator, and Owner. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from Work Area at the end of the work.
- D. Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work Area. Do not remove gloves from Work Area and dispose of as asbestos-contaminated waste at the end of the work.

### 2.2 ADDITIONAL PROTECTIVE EQUIPMENT:

- A. Disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Owner's Representative, Project Administrator, and other authorized representatives who may inspect the job site. Provide six (6) complete coveralls per day.

## PART 3 EXECUTION

### 3.1 GENERAL:

- A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.
- B. Each time Work Area is entered remove all street clothes in the Changing Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.

### 3.2 DECONTAMINATION PROCEDURES:

- A. Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area:
  - 1. Type C Supplied Air or Powered Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:



- a. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
- b. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:
  - c. Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.
  - d. With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.
  - e. Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.
  - f. Carefully wash facepiece of respirator inside and out.
2. If using PAPR: shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.
  - a. Shower completely with soap and water.
  - b. Rinse thoroughly.
  - c. Rinse shower room walls and floor prior to exit.
  - d. Proceed from shower to Changing Room and change into street clothes or into new disposable work items.
- B. Remote Shower: The procedures above are to be used if the decontamination facility is used as a remote shower. If a worker cannot gain direct access to the Equipment Room require that he enter Decontamination Unit and proceed directly through Shower Room to Equipment Room. Decontamination procedure is then completed as required above.
- C. Within Work Area:
  1. Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, drink or smoke, workers shall follow the procedure described above, then dress in street clothes before entering the non-Work Areas of the building.

### 3.3 CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT:

- A. Following this section is a Certificate of Worker Training. After each worker has been included in the Contractor's Respiratory Protection Program, completed the training program and medical examination, secure a fully executed copy of this form.

**END OF SECTION - 01560**



**CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT**

PROJECT NAME \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT ADDRESS \_\_\_\_\_

CONTRACTOR'S NAME \_\_\_\_\_

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. This training must have been the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).

MEDICAL EXAMINATION: You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer.

Signature \_\_\_\_\_ Social Security No \_\_\_\_\_

Printed Name \_\_\_\_\_ Witness \_\_\_\_\_



## SECTION 01562 - RESPIRATORY PROTECTION

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK:

- A. Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials (ACM) in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.

#### 1.3 DEFINITIONS:

- A. "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. These types of respirators will not be utilized on this project.
- B. "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.
- C. "Respirator": A device designed to protect the wearer from the inhalation of harmful atmospheres.

#### 1.4 STANDARDS:

- A. Except to the extent that more stringent requirements are written directly into the Contract Documents, the latest edition of the following 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 were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.
  1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards Section 29 CFR 1910.1001, Section 1910.134, and Section 29 CFR 1926.1101.
  2. CGA - Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air".
  3. CSA - Canadian Standard Association, Rexdal, Ontario, Standard Z180.1, "Compressed Breathing Air".
  4. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2.



5. NIOSH - National Institute for Occupational Safety and Health
  - NIOSH Respirator Decision Logic (May 1987) DHHS/NIOSH Publication No. 87-108;
  - NIOSH/EPA, "A Guide to Respiratory Protection for the Asbestos Abatement Industry" EPA-560-OPTS-86-001 (September 1986);
  - 42 CFR 84, NIOSH Standard for Certification of Non-Powered Air Purifying Respirator filters;
  - 30 CFR 11, NIOSH - Certification of Respirators
6. MSHA - Mine Safety and Health Administration

#### 1.5 SUBMITTALS:

- A. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.
  1. Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly.
  2. System Diagram: When a supplied air respiratory system is required by the work, submit drawing showing assembly of components into a complete supplied air respiratory system. Include diagram showing location of compressor, filter banks, backup air supply tanks, hose line connections in Work Area(s), routing of air lines to Work Area(s) from compressor.
  3. Operating Instruction: Submit complete operating and maintenance instructions for all components and systems as a whole. Submittal is to be in bound manual form suitable for field use.
  4. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.1101.
  5. Resume information: Submit resume and information on training for individual monitoring the operation of supplied air respiratory systems. Submit training certifications where applicable.

#### 1.6 AIR QUALITY FOR SUPPLIED AIR RESPIRATORY SYSTEMS:

- A. Provide air used for breathing in supplied air respiratory systems that meets or exceeds standards set for C.G.A. type 1 (Gaseous Air) Grade D:

#### 1.7 ALLOWABLE CONTAMINANTS:

- A. Supply air that has an asbestos concentration no greater than outside ambient conditions.
- B. Supply air that meets the level of contaminants allowed according to the air quality standard specified.
- C. The following table sets forth the quantity of any given contaminant allowed according to the referenced standards:



CONTAMINANT	Grade D	CGA Type 1 (Gaseous Air) Grade E	Grade H	CSA Z180.1
Carbon Monoxide, PPM/v	20	10	5	5
Carbon Dioxide, PPM/v	1000	500	500	500
Condensed Hydrocarbons, mg./cu. meter	5	5		1
Gaseous Hydrocarbons - as methane, PPM/v			10	25
Water Vapor PPM/v dewpoint	(1) -50F	(1) -50F	(1) -50F	27 -63F
Objectionable Odors	None	None	None	None
Nitrogen Dioxide, PPM/v	-	-	0.5	0.2
Nitrous Oxide, PPM/v	-	-	-	5
Sulfur Dioxide, PPM/v	-	-	0.5	-
Halogenated solvents, PPM/v	-	-	1	-
Other gaseous contaminants	-	-	-	(2)
Inorganic particulates, mg./cu. meter	-	-	-	1

- Indicates that the standard shows no limiting characteristics

- (1) The CGA standards do not indicate a specific moisture limit when the ambient temperature is above freezing. However, since a moisture content no greater than a -50 Degrees Fahrenheit (-45.56 Degrees Celsius) dewpoint (66 PPM/v) is necessary for carbon monoxide elimination, the CO limits could not be met unless the air were dried to a -50 Degrees Fahrenheit (-45.56 Degrees Celsius) dewpoint or better.
- (2) Maximum allowable content of trichlorotrifluoroethane, dichlorodifluoromethane, and chlorodifluoromethane is 2 PPM/v for each. Unlisted contaminants shall not exceed one-tenth of the Threshold Limit Values (TLV's) for Chemical Substances in Workroom air adopted by the American Conference of Governmental Industrial Hygienists (ACGIH).

### 1.8 DELIVERY:

- A. Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

## PART 2 EQUIPMENT

### 2.1 AIR PURIFYING RESPIRATORS

- A. Respirator Bodies: Provide full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit (0 degrees Celsius).



- B. Filter Cartridges: 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 42 CFR Part 84 and ANSI Z228.2. Also, additional cartridge sections 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.
- C. Non-permitted respirators. Do not use single use, disposable, or Negative Pressure Respirators. Use of PAPR respirators is permitted with written approval by the Owner's Representative.

## 2.2 SUPPLIED AIR RESPIRATOR SYSTEMS:

- A. Provide equipment capable of producing air of the quality and volume required by the above reference standards applied to the job site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.
- B. Facepiece and Hose: Provide full facepiece and hose by same manufacturer that has been certified by NIOSH/MSHA as an approved Type "C" respirator assembly operating in pressure demand mode with a positive pressure facepiece.
- C. Auxiliary backup system: In atmospheres which contain sufficient oxygen (greater than or equal to 19.5 percent oxygen) provide a pressure-demand full facepiece supplied air respirator equipped with an emergency back-up HEPA filter.
- D. Escape air supply: In atmospheres which are oxygen deficient (less than 19.5 percent oxygen) provide a pressure-demand full facepiece supplied air respirator incorporating an auxiliary self-contained breathing apparatus (SCBA) which automatically maintains an uninterrupted air supply in pressure demand mode with a positive pressure face piece.
- E. Backup air supply: Provide a reservoir of compressed air located outside the Work Area which will automatically maintain a continuous uninterruptable source of air automatically available to each connected facepiece and hose assembly in the event of compressor shut-down, contamination of air delivered by compressor, power loss or other failure. Provide sufficient capacity in the back-up air supply to allow a minimum escape time of one-half hour times the number of connections available to the Work Area. Air requirement at each connection is the air requirement of the respirators in use plus the air requirement of an average-sized adult male engaged in moderately strenuous activity.
- F. Warning device: Provide a warning device that will operate independently of the building's power supply. Locate that alarm is clearly audible above the noise level produced by equipment and work procedures in use, in all parts of the Work Area and at the compressor. Connect alarm to warn of:
  - 1. Compressor shut down or other fault requiring use of backup air supply
  - 2. Carbon Monoxide (CO) levels in excess of 5 PPM/V
- G. Carbon Monoxide (CO) Monitor: Continuously monitor and record on a strip chart recorder Carbon Monoxide (CO) levels. Place monitors in the air line between compressor and back-up air supply and between backup air supply and workers. Connect monitors so that they also sound an alarm as specified under "Warning Devices".
- H. Compressor Shut Down: Interconnect monitors, alarms and compressor so that compressor is automatically shut down and the alarms sound if any of the following occur:



1. Carbon Monoxide (CO) concentrations exceed 5 PPM/v in the air line between the filter bank and backup air supply
2. Compressor temperature exceeds normal operating range
- I. Compressor Location: Locate compressor outside of building in location that will not impede access to the building, and that will not cause a nuisance by virtue of noise or fumes to occupied portions of the building.
- J. Air Intake: Locate air intake remotely from any source of automobile exhaust or any exhaust from engines, motors, auxiliary generator or buildings.
- K. After-Cooler: Provide an after-cooler at entry to filter system which is capable of reducing temperatures to outside ambient air temperatures.
- L. Self-Contained Breathing Apparatus (SCBA): Configure system to permit the recharging of ½ hour 2260 PSI (15.58 MPa) SCBA cylinders.

### PART 3 EXECUTION

#### 3.1 GENERAL:

- A. Respiratory Protection Program: Comply with ANSI Z88.2 "Practices for Respiratory Protection" and OSHA 29 CFR 1910.314 and 1926.103.
- B. Require that respiratory protection be used at all times that there is any possibility of disturbance of ACM whether intentional or accidental.
- C. Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy in accordance with Section 01711.
- D. Regardless of Airborne Fiber Levels: Require that the minimum level of respiratory protection used be a PAPR respirators with high efficiency filters.

#### 3.2 FIT TESTING:

- A. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training set up and administered by an individual qualified to do fit testing. Fit types and sizes of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.
- B. On a Weekly Basis, check the fit of each worker's respirator by having irritant smoke blown onto the respirator from a smoke tube.
- C. Upon Each Wearing: Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2.

#### 3.3 TYPE OF RESPIRATORY PROTECTION REQUIRED:

- A. General: After reducing airborne asbestos levels to the lowest feasible level with engineering controls and work practices, provide respiratory protection as necessary to ensure that workers are



not exposed to an airborne concentration of asbestos in excess of the Specified Permissible Exposure Limits (SPEL) set forth in this Section.

- B. Specific Respiratory Protection Requirements: Provide respiratory protection as indicated below as a minimum requirement:
  - 1. Powered Air-Purifying Respirators (PAPR): Provide powered air-purifying respirators (PAPR) during project set up and during final cleaning.
  - 2. Type "C" Supplied-air respirators: full facepiece pressure demand supplied air respirators are to be used by all workers engaged in the removal of thermal system insulation (TSI) or surfacing materials, or demolition of pipes, structures, or equipment covered or insulated with asbestos, or in the removal or demolition of asbestos insulation or coverings, or any other activity, (with exception to 3.3 B.1), which results in or may result in airborne asbestos fiber levels.

**3.4 SPECIFIED PERMISSIBLE EXPOSURE LIMITS (SPEL):**

- A. Specified Permissible Exposure Limits (SPEL): Ensure that no worker is exposed to an airborne concentration of asbestos in excess of the Time-Weighted Average (TWA) limit, and Excursion Limit (EL) set forth below.
  - 1. Time Weighted Average (TWA) limit - Concentration of airborne asbestos fibers to which any worker may be exposed as an eight (8) hour time-weighted average (TWA) shall not exceed the following.
    - a. 0.01 fibers per cubic centimeter
  - 2. Excursion Limit (EL) - Concentration of airborne asbestos fibers to which any worker may be exposed as averaged over a sampling period of thirty (30) minutes shall not exceed the following.
    - a. 1.0 fibers per cubic centimeter
- B. Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the OSHA Reference Method (ORM), or NIOSH 7400 procedure.
  - 1. Electron Microscopy: If Electron Microscopy is used to determine airborne fiber levels, only asbestos fibers will be enumerated, but fibers of any size detected by the testing of Section 01711 Project Decontamination will be counted.

**RESPIRATORY PROTECTION FACTOR:**

C.	Respirator Type	Protection Factor
1.	Powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode. Full facepiece	100



2. Supplied air: 1,000  
Positive pressure respirator  
Pressure demand or other  
positive pressure mode  
Full facepiece  
Equipped with an  
auxiliary HEPA cartridge  
or positive pressure  
Self-contained breathing  
apparatus (SCBA) for escape

### 3.5 AIR PURIFYING RESPIRATORS:

- A. Powered air purifying - half or full face mask: Supply a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change filters at any time that flow through the facepiece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords, be washed each time a worker leaves the Work Area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

### 3.6 SUPPLIED AIR RESPIRATOR:

- A. Air Systems Monitor: Continuously monitor the air system operation including compressor operation, filter system operation, backup air capacity and all warning and monitoring devices at all times that system is in operation. Assign an individual, trained by manufacturer of the equipment in use or by a Certified Industrial Hygienist, in the operation and maintenance of the system to provide this monitoring. Assign no other duties to this individual which will take him away from monitoring the air system.

END OF SECTION - 01562



## SECTION 01563 - DECONTAMINATION UNITS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK:

- A. Provide separate Personnel and Equipment Decontamination facilities. Require that the Personnel Decontamination Unit be the only means of ingress and egress for the Work Area. Require that all materials exit the Work Area through the Equipment Decontamination Unit.

#### 1.3 RELATED WORK SPECIFIED ELSEWHERE:

- A. Refer to Section 01503 Temporary Facilities - Asbestos Abatement for electrical requirements and requirements relative to connection of decontamination facilities to building systems such as water, sewer, and electrical.

#### 1.4 SUBMITTALS

- A. Before the Start of Work: Submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.
  1. Personnel Decontamination Unit: Provide shop drawing showing location and assembly of personnel decontamination units.
  2. Equipment Decontamination Unit: Provide shop drawing showing location and assembly of equipment decontamination units.
  3. Shower Pan: Provide shop drawing.
  4. Shower Walls: Provide product data.
  5. Shower Head and Controls: Provide product data.
  6. Filters: Provide product data and shop drawing of installation on decontamination unit.
  7. Hose Bib: Provide product data.
  8. Shower Stall: for Wash Down Station provide product data and shop drawing showing and modifications.
  9. Elastomeric membrane: Provide product data.
  10. Lumber: Provide product data on fire resistance treatment.
  11. Sump Pump: Provide product data.



## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.
- B. Flame Resistant Polyethylene Sheet: 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 size possible to minimize seams, 6.0 mil (0.15 mm) thick, frosted or black as indicated.
- C. Reinforced Polyethylene Sheet: Where plastic sheet is the only separation between the Work Area and building exterior, provide translucent, nylon reinforced, laminated, 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 size possible to minimize seams, 6.0 mil (0.15 mm) thick, frosted or black as indicated.
- D. Duct Tape: Provide duct tape in 2 inch or 3 inch (51mm or 76 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.
- E. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.
- F. Shower Pan: Provide one piece waterproof shower pan 4 feet x 8 feet x 6 inches deep (102 mm X 204 mm x 152 mm deep). Fabricate from seamless fiberglass minimum 1/16 inch (1.59 mm) thick reinforced with wood, 18 ga. stainless or galvanized steel with welded seams, copper or lead with soldered seams, or a seamless liner of minimum 60 mil (1.5 mm) thick elastomeric membrane.
- G. Shower Walls: Provide 8 feet (2.44 m) long by approximately 7 feet (2.13 m) high walls fabricated from rigid, impervious, waterproof material, either corrugated fiberglass roofing or equivalent. Structurally support as necessary for stability.
- H. Shower Head and Controls: Provide a factory-made shower head producing a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply lines. Arrange so that control of water temperature, flow rate, and shut off is from inside shower without outside aid.
- I. Filters: Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.
1. Primary Filter - Passes particles 20 microns and smaller
  2. Secondary Filter - Passes particles 5 microns and smaller
- J. Hose Bib: Provide heavy bronze angle type with wheel handle, vacuum breaker, and 3/4 inch (19.05 mm) National Standard male hose outlet.
- K. Shower Stall: For Wash Down Station provide leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3 feet x 3 feet (0.91m x 0.91 m) square with minimum 6 feet (1.83 m) high sides and back. Structurally support as necessary for stability. Equip with hose bib, as specified in this section, mounted at approximately 4 feet (1.22 m) above drain pan. Connect drain to a reservoir, pump water from



reservoir through filters to a drain or store and use for amended water. Mount filters inside shower stall on back wall beneath hose bib.

- L. Elastomeric membrane: Provide uniform flat sheets of flexible sheet roofing material fabricated from EPDM (ethylene propylene diene monomers) or Neoprene (polychloroprene), in a nominal 45 mil (1.14 mm) thickness.
- M. Lumber: Provide kiln dried lumber of any grade or species.
- N. Sump Pump: Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump 2 times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of 3 inch (76 mm) remains between top of liquid and top of sump pan.

### PART 3 EXECUTION

#### 3.1 PERSONNEL DECONTAMINATION UNIT:

- A. Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Changing Room, Drying Room, Shower Room, Equipment Room. Require all persons without exception to pass through this Decontamination Unit for entry into and exiting from the Work Area for any purpose. Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit. Provide temporary lighting within Decontamination Units as necessary to reach a lighting level of 100 foot candles (1076 lumens / sq meter).
- B. Changing Room (clean room): Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing.
  - 1. Construct using polyethylene sheeting, at least 6 mil (0.15 mm) in thickness, to provide an airtight seal between the Changing Room and the rest of the building.
  - 2. Locate so that access to Work Area from Changing Room is through Shower Room.
  - 3. Separate Changing Room from the building by a sheet plastic flapped doorway.
  - 4. Require workers to remove all street clothes in this room, dress in clean, disposable coveralls, and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter this room. Require Workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.
  - 5. An existing room may be utilized as the Changing Room if it is suitably located and of a configuration whereby workers may enter the Changing Room directly from the Shower Room. Protect all surfaces of room with sheet plastic as set forth in Section 01526 Temporary Enclosures. Authorization for this must be obtained from the Owner's Representative in writing prior to start of construction. Submit written request in accordance with Section 01632 "Substitutions" detailing layout and protective measures proposed.
  - 6. Maintain floor of changing room dry and clean at all times. Do not allow overflow water from shower to wet floor in changing room.



7. Damp wipe all surfaces twice after each shift change with a disinfectant solution.
  8. Provide posted information for all emergency phone numbers and procedures.
  9. Provide 1 storage locker per employee.
  10. Provide all other components indicated on the contract drawings.
  11. Airlock: Provide an airlock between Drying Room and Changing Room. This is a transit area for workers.
  12. Separate this room from Drying Room and Changing Room by sheet plastic flapped doorways.
  13. Separate this room from the rest of the building with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.
  14. Separate this room from the Drying and Changing Rooms with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.
- C. Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Changing Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room.
1. Construct room by providing a shower pan and 2 shower walls in a configuration that will cause water running down walls to drip into pan. Install a freely draining wooden floor in shower pan at elevation of top of pan.
  2. Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.
  3. Separate this room from the Change Room and Airlock with airtight walls fabricated of 6 mil polyethylene.
  4. Provide splash-proof entrances to Change Room and Airlock with doors arranged in a manner which will prevent shower water from exiting the Shower Room.
  5. Provide shower head and controls.
  6. Provide temporary extensions of existing hot and cold water and drainage, as necessary for a complete and operable shower.
  7. Provide a soap dish and a continuously adequate supply of soap and maintain in sanitary condition.
  8. Arrange so that water from showering does not splash into the Changing or Equipment Rooms.
  9. Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area.
  10. Provide flexible hose shower head.
  11. Pump waste water to drain or to storage for use in amended water. If pumped to drain, provide 20 micron and 5 micron waste water filters in line to drain or waste water storage. Change filters daily or more often if necessary. Locate filters inside shower unit so that water lost during filter changes is caught by shower pan.



12. Provide hose bib.
  13. Provide all other items indicated on contract drawings.
- D. Equipment Room (contaminated area): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers.
1. Separate this room from the Work Area by a 6 mil polyethylene flapped doorway.
  2. Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.
  3. Separate this room from the Shower Room and Work Area with airtight walls fabricated of 6 mil polyethylene.
  4. Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every shift change expected. Roll drop cloth layer of plastic from Equipment Room into Work Area after each shift change. Replace before next shift change. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.
- E. Work Area: Separate Work Area from the Equipment Room by polyethylene barriers. If the airborne asbestos level in the Work Area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the Work Area. Damp wipe clean all surfaces after each shift change. Provide one additional floor layer of 6 mil polyethylene per shift change and remove contaminated layer after each shift.
- F. Decontamination Sequence: Require that all workers adhere to the following sequence when entering or leaving the Work Area.
1. Entering Work Area: Worker enters Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room.
  2. Any additional clothing and equipment left in Equipment Room needed by the worker are put on in the Equipment Room.
  3. Worker proceeds to Work Area.
- G. Exiting Work Area:
1. Before leaving the Work Area, require the worker to remove all gross contamination and debris from overalls and feet.
  2. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment.
  3. Extra work clothing such as boots, hard hats, goggles, gloves are to be stored in contaminated end of the Equipment Room.
  4. Disposable coveralls are placed in a bag for disposal with other material.
  5. Require that Decontamination procedures found in Section 01560 be followed by all individuals leaving the Work Area.
  6. After showering, the worker moves to the Changing Room and dresses in either new coveralls for another entry or street clothes if leaving.



### 3.2 EQUIPMENT DECONTAMINATION UNIT:

- A. Provide an Equipment Decontamination Unit consisting of a serial arrangement of rooms, Clean Room and Wash Room for removal of equipment and material from Work Area. Do not allow personnel to enter or exit Work Area through Equipment Decontamination Unit.
- B. Arrange with airlocks between rooms as required below.
- C. Wash Down Station: Provide an enclosed Shower Unit located in Work Area just outside Wash Room as an equipment, bag and container cleaning station.
  - 1. Fabricate waterproof floor extending 6 feet beyond Wash Down station in all directions. Install seamless waterproof membrane over area and extend over curbs on all four sides. Form curbs from 2 inch x 4 inch lumber laid on the flat.
  - 2. Waterproof membrane is to be fabricated from elastomeric membrane.
  - 3. Waterproof membrane is to be fabricated from minimum 10 mil polyethylene.
  - 4. Do not allow water to collect on waterproof membrane. Remove continuously with a wet vacuum or mops.
- D. Wash Room: provide wash room for cleaning of bagged or containerized asbestos-containing waste materials passed from the Work Area.
  - 1. Construct wash room of nominal 2 inch x 4 inch wood framing and polyethylene sheeting, at least 6 mil in thickness and located so that packaged materials, after being wiped clean, can be passed to the Holding Room.
  - 2. Separate this room from the Work Area by a single flapped door of 6 mil polyethylene sheeting.
  - 3. Provide a drop cloth layer of plastic on floor in the Wash Room for every load-out operation. Roll this drop cloth layer of plastic from Wash Room into Work Area after each load-out. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.
- E. Holding Room: Provide Holding Room as a drop location for bagged asbestos-containing materials passed from the Wash Room. Construct Holding Room of nominal 2 inch x 4 inch wood framing and polyethylene sheeting, at least 6 mil in thickness and located so that bagged materials cannot be passed from the Wash Room through the Holding Room to the Clean Room.
  - 1. Separate this room from the adjacent rooms by flap doors fabricated from 6 mil sheet plastic.
- F. Clean Room: provide Clean Room to isolate the Holding Room from the building exterior. If possible locate to provide direct access to the Holding Room from the building exterior.
  - 1. Erect Critical and Primary Barriers as described in Section 01526 "Temporary Enclosures" in an existing space. If no space exists construct Clean Room of 2 x 4 wood framing and polyethylene sheeting, at least 6 mil in thickness.
  - 2. Separate this room from the exterior by a single flap door of 6 mil polyethylene sheeting.
- G. Load-out Area: The load-out area is the transfer area from the building to a truck or dumpster. It may be the Clean Room of the Equipment Decontamination unit or a separate room or loading dock area. Erect Critical and Primary barriers as described in Section 01526 "Temporary Enclosures" in load-out area.



1. During transfer of material from load-out area erect primary barriers as described in Section 01526 "Temporary Enclosures" as necessary to seal path from load-out area to truck or dumpster.
- H. Decontamination Sequence: Take all equipment or material from the Work Area through the Equipment Decontamination Unit according to the following procedure:
  1. At washdown station, thoroughly wet clean contaminated equipment or sealed polyethylene bags and pass into Wash Room.
  2. When passing equipment or containers into the Wash Room, close all doorways of the Equipment Decontamination Unit, other than the doorway between the Washdown Station and the Wash Room. Keep all outside personnel clear of the Equipment Decontamination Unit.
  3. Once inside the washroom, wet clean the bags and/or equipment.
  4. When cleaning is complete pass items into Holding Room. Close all doorways except the doorway between the Holding room and the Clean Room.
  5. Workers from the building exterior enter Holding Area and remove decontaminated equipment and/or containers for disposal.
  6. Require these workers to wear full protective clothing and appropriate respiratory protection.
  7. At no time is a worker from an uncontaminated area to enter the enclosure when a removal worker is inside.

### 3.3 CONSTRUCTION OF THE DECONTAMINATION UNITS:

- A. Walls and Ceiling: Construct airtight walls and ceiling using polyethylene sheeting, at least 6 mil in thickness. Attach to existing building components or a temporary framework.
- B. Floors: Use 2 layers (minimum) of 6 mil polyethylene sheeting to cover floors in all areas of the Decontamination Units. Use only clear plastic to cover floors.
- C. Flap Doors: Fabricated from three (3) overlapping sheets with openings a minimum of three feet (3') wide. Configure so that sheeting overlaps adjacent surfaces. Weights at bottom of sheets as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of six feet (6') between entrance and exit of any room. Provide a minimum of three feet (3') between doors to airlocks.
- D. If the Decontamination area is located within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the area with a minimum 1/4 inch hardboard or 1/2 inch plywood "ceiling" with polyethylene sheeting, at least 6 mil in thickness covering the top of the "ceiling".
- E. Visual Barrier: Where the Decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil in thickness so that worker privacy is maintained and work procedures are not visible to building occupants. Where the area adjacent to the Decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct barrier with wood or metal studs covered with minimum 1/4 inch thick hardboard or 1/2 inch plywood. Where the solid barrier is provided, sheeting need not be opaque.



- F. Alternate methods of providing Decontamination facilities may be submitted to the Owner’s Representative for approval. Do not proceed with any such method(s) without written authorization of the Owner’s Representative.
- G. Electrical: Provide subpanel at Changing Room to accommodate all removal equipment. Power subpanel directly from a building electrical panel.
  - 1. Connect all electrical branch circuits in Decontamination unit and particularly any pumps in shower room to a ground-fault circuit protection device.

**3.4 CLEANING OF DECONTAMINATION UNITS:**

- A. Clean debris and residue from inside of Decontamination Units on a daily basis or as otherwise indicated on Contract Drawings. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.
- B. If the Changing Room of the Personnel Decontamination Unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former Changing Room as an inner section of the new Equipment Room.

**3.5 SIGNS:**

- A. Post an approximately 20 inch by 14 inch manufactured caution sign at each entrance to the Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

- 1. Provide signs in both English and Spanish.
- 2. Legend:

DANGER  
 ASBESTOS  
 CANCER AND LUNG DISEASE HAZARD  
 AUTHORIZED PERSONNEL ONLY  
 RESPIRATORS AND PROTECTIVE CLOTHING  
 ARE REQUIRED IN THIS AREA

- 3. Provide spacing between respective lines at least equal to the height of the respective upper line.

- B. Post an approximately 10 inch by 14 inch manufactured sign at each entrance to each Work Area displaying the following legend with letter sizes and styles of a visibility at least equal to the following:

- 1. Provide signs in both English and Spanish.
- 2. Legend Notation



NO FOOD, BEVERAGES OR TOBACCO PERMITTED 3/4 inch (19 mm) Block

ALL PERSONS SHALL DON PROTECTIVE CLOTHING (COVERINGS) BEFORE ENTERING THE WORK AREA 3/4 inch (19 mm) Block

ALL PERSONS SHALL SHOWER IMMEDIATELY AFTER LEAVING WORK AREA AND BEFORE ENTERING THE CHANGING AREA 3/4 inch (19 mm) Block

END OF SECTION - 01563

NOT FOR BIDDING



## SECTION 01601 - MATERIALS AND EQUIPMENT - ASBESTOS ABATEMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
1. The Contractor's Construction Schedule is included under Section 01043 Coordination - Asbestos Abatement.
  2. The Contractor's Schedule of Submittals is included under Section 01301 Submittals - Asbestos Abatement.
  3. The applicability of industry standards to products specified is included under Section 01097 Reference Standards and Definitions - Asbestos Abatement.
  4. The administrative procedures for handling requests for substitutions made after award of the Contract is included under Section 01632 Substitutions - Asbestos Abatement.

#### 1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  2. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
  3. "Foreign Products" as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its possessions are also considered to be foreign products.
  4. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
  5. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.



6. "Equipment" are products that may be either operational or fixed.
  - a. Operational Equipment are products with operating parts, whether motorized or manually operated, that requires temporary or permanent service connections, such as wiring or piping.
  - b. Fixed Equipment are products necessary for accomplishing the work that are used as a temporary facility during the work and removed afterward.

#### 1.4 SUBMITTALS

Required submittals: A general listing of products requiring submittals is included at the end of Section 01301 "Submittals." This listing may not be complete. Submittal requirements are found in each specification section. Prepare a schedule in tabular form showing each product listed. Include the manufacturer's name and proprietary product names for each item listed.

- A. Product List: Prepare a list showing products specified in tabular form acceptable to the Owner's representative. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
  1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
  2. Form: Prepare product list with information on each item tabulated under the following column headings:
    - a. Related Specification Section number.
    - b. Generic name used in Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
  3. Owner's Representative's Action: The Owner's Representative will respond in writing to Contractor within 2 weeks of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Owner's representative's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.



## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
  6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
  7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
1. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
1. Semi-proprietary Specification Requirements: Where Specifications name 2 or more products or manufacturers, provide 1 of the products indicated. No substitutions will be permitted.
    - a. Where Specifications specify products or manufacturers by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.



**PART 3 - EXECUTION**

**3.1 INSTALLATION OF PRODUCTS**

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
  - 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

**END OF SECTION 01601**



## SECTION 01632 - SUBSTITUTIONS - ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. Related Sections: The following Sections contain requirements that relate to the Section:
  - 1. Division 1 Section "Reference Standards and Definitions - Asbestos Abatement" specifies the applicability of industry standards to products specified.
  - 2. Division 1 Section "Coordination - Asbestos Abatement" specifies requirements for submitting the Contractor's Construction Schedule.
  - 3. Division 1 Section "Submittals - Asbestos Abatement" specifies requirements for submitting the Submittal Schedule.
  - 4. Division 1 Section "Materials and Equipment - Asbestos Abatement" specifies requirements governing the Contractor's selection of products and product options.

#### 1.3 DEFINITIONS

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:
  - 1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
  - 2. Revisions to the Contract Documents requested by the Owner or Owner's Representative.
  - 3. Specified options of products and construction methods included in the Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Substitution Request Submittal: The Owner's Representative will consider requests for substitution if received within 2 weeks prior to commencement of the Work. Requests received less than 3



weeks prior to commencement of the Work may be considered or rejected at the discretion of the Owner's Representative.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals.
2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
  - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors that will be necessary to accommodate the proposed substitution.
  - b. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
  - c. Product Data, including Drawings and descriptions of products and fabrication and installation procedures.
  - d. Samples, where applicable or requested.
  - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
  - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
  - g. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
  - h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
4. Owner's Representative's Action: If necessary, the Owner's Representative will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Owner's Representative will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.
  - a. Use the product specified if the Owner's Representative cannot make a decision on the use of a proposed substitute within the time allocated.



## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Owner's Representative will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Owner's Representative. If the following conditions are not satisfied, the Owner's Representative will return the requests without action except to record noncompliance with these requirements.
1. Extensive revisions to the Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of the Contract Documents.
  3. The request is timely, fully documented, and properly submitted.
  4. The specified product or method of construction cannot be provided within the Contract Time.
  5. The Owner's Representative will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  6. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
  7. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Owner's Representative for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
  8. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  9. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
  10. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
  11. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- B. The Contractor's submittal and the Owner's Representative's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

## PART 3 EXECUTION (Not Applicable)

END OF SECTION 01632



## SECTION 01701 - CONTRACT CLOSEOUT - ASBESTOS ABATEMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
1. Inspection procedures.
  2. Project record document submittal.
  3. Submittal of warranties.
  4. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Division Sections.

#### 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
    - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
    - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  2. Advise the Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
  4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  5. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
  6. Complete final cleanup requirements, including touch up painting, if required.



7. Touch up and otherwise repair and restore marred, exposed finishes.
  8. Complete start up testing of building systems, remove temporary facilities from site along with construction tools and similar elements.
- B. Inspection Procedures: On receipt of a request for inspection, the Owner's Representative will either proceed with inspection or advise the Contractor of unfilled requirements. The Owner's Representative will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued. This will form the initial "punch-list" for final acceptance.
1. The Owner's Representative will repeat inspection when requested and assured that the Work is substantially complete.
  2. Results of the completed inspection will form the basis of requirements for final acceptance.

#### 1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
  2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  3. Submit a certified copy of the Owner's Representative's final inspection list of items to be completed or corrected, endorsed and dated by the Owner's Representative. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Owner's Representative.
  4. Submit consent of surety to final payment.
  5. Submit a final liquidated damages settlement statement.
  6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Owner's Representative will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Owner's Representative.
1. Upon completion of reinspection, the Owner's Representative will prepare a certificate of final acceptance. If the Work is incomplete, the Owner's Representative will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
  2. If necessary, reinspection will be repeated.



## 1.5 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Owner's Representative's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
  2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
  3. Note related change-order numbers where applicable.
  4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
  2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
  3. Note related record drawing information and Product Data.
  4. Upon completion of the Work, submit record Specifications to the Owner's Representative for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
  2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
  3. Upon completion of markup, submit complete set of record Product Data to the Owner's Representative for the Owner's records.
- E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Owner's Representative for the Owner's records.



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

**PART 3 - EXECUTION**

**3.1 FINAL CLEANING**

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls." The cleaning in this Section is in addition to cleaning which is part of decontamination work. This section is intended to return the facility to the Owner in presentable condition.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
    - a. Remove labels that are not permanent labels.
    - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials.
    - c. Replace chipped or broken glass and other damaged transparent materials.
    - d. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
    - e. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
    - f. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
  - C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
  - D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
    1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner.

**END OF SECTION 01701**



## SECTION 01711 - PROJECT DECONTAMINATION

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. Work of This Section includes the decontamination of air in the Work Area which has been, or may have been, contaminated by the elevated airborne asbestos fiber levels generated during abatement activities, or which may previously have had elevated fiber levels due to friable asbestos-containing materials (ACM) in the space.
- B. Work of This Section includes the cleaning, decontamination, and removal of temporary facilities installed prior to abatement work, including:
  - 1. Primary and Critical Barriers erected by work of Section 01526
  - 2. Decontamination Unit erected by work of Section 01563
  - 3. Pressure Differential System installed by work of Section 01513
- C. Work of This Section includes the cleaning, and decontamination of all surfaces (ceiling, walls, floor) of the Work Area, and all furniture or equipment in the Work Area.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this section.

#### 1.3 DESCRIPTION OF REQUIREMENTS:

- A. General: Decontamination of the Work Area following asbestos abatement.
- B. If the asbestos abatement work is on damaged or friable materials the work is a four step procedure with two cleanings of the Primary Barrier plastic prior to its removal and two cleanings of the room surfaces to remove any new or existing contamination. Unless specifically indicated otherwise all materials are considered damaged or friable for purposes of this section.
- C. If the asbestos abatement work is on undamaged and non-friable materials the decontamination procedure is a two step procedure with two cleanings of the Primary Barrier plastic to remove contamination, thus preventing contamination of the building when the Work Area isolation barriers are removed.
- D. In both cases operation of the pressure differential system is used to remove airborne fibers generated by the abatement work.

#### 1.4 RELATED WORK SPECIFIED ELSEWHERE:

- A. Removal of Gross Debris is integral with the performance of abatement work and as such is specified in the appropriate work section(s) of these specifications:
  - 1. Section 02081 Removal of Asbestos-Containing Materials



### 1.5 CLEARANCE AIR SAMPLING BY THE OWNER:

- A. To determine if the elevated airborne asbestos structure concentration encountered during abatement operations has been reduced to the specified level, the Owner will secure samples and analyze them according to the following procedures.
  - 1. Aggressive sampling procedures as described below will be followed.
  - 2. PCM and TEM samples will be secured as indicated below. PCM samples will be analyzed and TEM samples will be transmitted to the laboratory. If the area meets the clearance criteria by PCM the TEM analysis will proceed.
  - 3. Work Area Clearance: upon meeting the TEM Clearance requirements the work of Section 01711 Project Decontamination can continue.

### 1.6 AGGRESSIVE SAMPLING BY THE OWNER:

- A. All Air Samples will be taken using aggressive sampling techniques as follows:
  - 1. Before sampling pumps are started the exhaust from forced-air equipment (leaf blower with an approximately 1 horsepower (746 watts) electric motor) will be swept against all walls, ceilings, floors, ledges and other surfaces in the room. This procedure will be continued for 5 minutes per 10,000 (283 cubic meters) cubic feet of room volume.
  - 2. One 20 inch (508 mm) diameter fan per 10,000 cubic feet (283 cubic meters) of room volume will be mounted in a central location at approximately 6 feet-6 inches (2 meters) above floor, directed toward ceiling and operated at low speed for the entire period of sample collection.
  - 3. Air samples will be collected in areas subject to normal air circulation away from room corners, obstructed locations, and sites near windows, doors or vents.
  - 4. After air sampling pumps have been shut off, fans will be shut off.
  - 5. In work areas where a dirt floor or exposed fibrous glass insulation is in the space, but outside the work area, maintain a critical barrier to prevent disturbance of these surfaces during aggressive sampling.

### 1.7 SCHEDULE OF CLEARANCE AIR SAMPLES BY OWNER:

- A. Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:
  - 1. PCM: 0.8 micrometer mixed cellulose ester.
  - 2. TEM: 0.45 micrometer mixed cellulose ester or 0.40 micrometer polycarbonate, with 5.0 micron mixed cellulose ester backing filter.
- B. Number and Volume of Samples: The number and volume of air samples given in the schedules is approximate. The exact number and volume of samples collected by the Owner may vary depending upon job conditions and the analytical method used.
- C. Sampling sensitivity:
  - 1. PCM: Based on a limit of detection (LOD) of 7 fibers/mm<sup>2</sup> on the filter (approximately 5 fiber counted in 100 fields) and a 95% confidence limit, a sample volume of sufficient size that a single sample indicates compliance with the limit values given below. A sample



must be at or below the LOD to indicate that it is at or below the limit value. Note: This is different from quantifying a concentration which is a stricter requirement and would need a larger sample volume.

- a. Clearance samples - a limit value of 0.01 f/cc.
2. TEM: Analytical Sensitivity as set forth in the analytical method used or the AHERA regulation.
- D. PHASE CONTRAST MICROSCOPY:
  1. In each Work Area after completion of all cleaning work, air samples will be taken and analyzed as described in Section 01013.
  2. Analysis: Fibers on each filter will be measured using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, or the OSHA Reference Method (ORM) (29 CFR 1926.1101 Appendix A).
  3. Fibers: referred to in this section include fibers regardless of composition as counted by the phase contrast microscopy method used.
  4. Split Sample: One Work Area sample will be split and both halves analyzed separately for duplicate analysis.
  5. Release Criteria: Decontamination of the work site is complete when every Work Area sample is at or below the Detection Limit above. If any sample is above the Detection Limit then the decontamination is incomplete and re-cleaning per section 01711 Project Decontamination is required.

#### 1.8 TRANSMISSION ELECTRON MICROSCOPY:

- A. In each Work Area after completion of all cleaning work, TEM samples may be taken and analyzed as referenced in Section 01013.
- B. Analysis will be performed using the analysis method set forth in the AHERA Regulation 40 CFR Part 763 Appendix A.
- C. Asbestos Structures referred to in this Section include asbestos fibers, bundles, clusters or matrices, as defined by method of analysis.
- D. Release Criteria: Decontamination of the work site is complete if either of the following two sets of conditions are met:
  1. Work Area Samples are below filter background levels
    - a. All Work Area sample volumes are greater than 2,000 liters for a 25 mm. sampling cassette.
    - b. The average concentration of asbestos of the five Work Area Samples does not exceed the filter background level of 70 structures per square millimeter of filter area.
  2. Work Area Samples are not statistically different from Outside samples
    - a. All sample volumes except for blanks are greater than 2,000 liters for a 25 mm. sampling cassette.



- b. The average asbestos concentration of the three blanks is below the filter background level of 70 structures per square millimeter of filter area.
  - c. Average asbestos concentrations in Work Area Samples are not statistically different from Outside samples, as determined by the Z-test calculation found in 40 CFR Part 763, Subpart E, Appendix A (Z is less than or equal to 1.65)
- E. If these conditions are not met then the decontamination is incomplete, repeat the cleaning procedures of this section.
- F. Termination of Analysis: if the arithmetic mean (average) asbestos concentration on the blank filters exceed 70 structures per square millimeter of filter area the analysis will cease and new samples collected.

#### 1.9 LABORATORY TESTING BY THE OWNER:

- A. Phase Contrast Microscopy by the Owner:
- 1. The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. A microscope and technician will be set up at the job site, or samples will be sent daily by overnight mail, so that verbal reports on air samples can be obtained within 24 hours. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Owner's Representative, the Owner and the Contractor.
- B. Transmission Electron Microscopy by the Owner:
- 1. Samples will be sent by overnight courier for analysis by Transmission Electron Microscopy. Samples will not be carried on weekends, so that samples shipped on Friday will arrive on the following Monday. Verbal results will normally be available between 24 and 48 hours after receipt of samples by the laboratory.
  - 2. Submit with bid unit cost for each day of waiting beyond that set forth in the paragraph above.

#### 1.10 SUBMITTALS:

- A. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for "Unrestricted Use" or "Final But Restricted Use."
- 1. Submit test report from an independent testing laboratory on the fire resistance rating of the assembly of the spray-back fireproofing on the lock-back sealer used.
- B. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal has been "Received - Not Reviewed."
- 1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for the following:
    - a. "Lock-Back," sealer.



**PART 2 - PRODUCTS (NOT APPLICABLE)**

**PART 3 - EXECUTION**

**3.1 START OF WORK:**

- A. Previous Work: During completion of the asbestos abatement work specified in other sections, the Secondary Barrier of polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.
- B. Visual inspection: Perform visual inspections of the work area along with the Project Administrator at each step of the decontamination process.
- C. Start of Work: Work of this section begins with the cleaning of the Primary Barrier. At start of work the following will be in place:
  - 1. Primary Barrier: Two layers of polyethylene sheeting on floor and one layer on walls.
  - 2. Critical Barrier: An airtight barrier between the Work Area and other portions of the building or the outside.
  - 3. Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers and other openings.
  - 4. Decontamination Units: For personnel and equipment in operating condition.
  - 5. Pressure Differential System: In operation.

**3.2 FIRST CLEANING:**

- 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.
  - 1. Remove All Filters in Air Handling System(s) and dispose of as asbestos-containing waste in accordance with requirements of Section 02084 Disposal of Regulated Asbestos-Containing Material.
  - 2. After the surfaces have passed a visual inspection verifying that all debris and residue has been removed from the sheet plastic, allow a waiting period that is long enough for the HEPA-filtered fan units operating in the work area to provide 96 air changes to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain Pressure Differential System in operation for the entire 96 air change period.

**3.3 FINAL CLEANING:**

- A. Final Cleaning: Carry out a final cleaning of all surfaces in the Work Area in the same manner as the previous cleaning.



- B. Contractor's Testing: At the completion of the above cleaning visually inspect all surfaces. Re-clean if any dust, debris, etc. is found. At completion of this inspection sweep entire Work Area including walls, ceilings, ledges, floors and other surfaces in the Work Area with exhaust from forced air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). Do not direct forced air equipment at any seal in any critical barrier. If any debris or dust is found repeat the final cleaning. Continue this process until no debris dust or other material is found while sweeping of all surfaces with forced air equipment.
- C. After a visual inspection, again wait for a period of time long enough for the HEPA-filtered fan units operating in the work area to provide 96 air changes to allow HEPA filtered fan units to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of Work Areas during this period. Maintain Pressure Differential System in operation for the entire 96 air change period.

### 3.4 VISUAL INSPECTION:

- A. After Final Cleaning Perform a Complete Visual Inspection of the entire Work Area including: all surfaces, ceiling, walls, floor, decontamination unit, all plastic sheeting, seals over ventilation openings, doorways, windows, and other openings; look for debris from any source, residue on surfaces, dust or other matter. During visual inspection sweep entire work area including walls, ceilings, ledges, floors, and other surfaces in the room with exhaust from forced air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). If any debris, residue, dust or other matter is found repeat final cleaning and continue decontamination procedure from that point. When the area is visually clean, and if after sweeping of all surfaces with leaf blower, no debris, residue, dust or other material is found, complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing, on the certification, by Project Administrator.
- B. Temporary lighting: Provide a minimum of 100 foot candles (1075 Lumens / sq meter) of lighting on all surfaces in the areas to be subjected to visual inspection. Provide hand held lights providing 150 foot candles (1600 lumens / sq meter) at 4 feet (1.25 meter) capable of reaching all locations in work area.
- C. Lifts: Provide ladders, scaffolding, and lifts as required to provide access to all surfaces in the area to be subjected to visual inspection. Access is to allow touching of all surfaces.

### 3.5 LOCK-BACK:

- A. Encapsulation of substrate: Perform encapsulation of substrate or installation of spray-applied finishes or fireproofing, where required, before Removal of Work Area Isolation as specified below. Maintain Pressure Differential System in operation during encapsulation work.

### 3.6 CLEARANCE AIR SAMPLING BY OWNER (TEM):

- A. Phase Contrast Microscopy (PCM): After the Work Area is found to be visually clean, air samples will be taken and analyzed by the Owner in accordance with the procedure for Phase Contrast Microscopy set forth in Part 1 of this section.
  1. If Release Criteria are not met, repeat Final Cleaning and continue decontamination procedure from that point.
  2. If Release Criteria are met the Owner will continue with the clearance air testing by Transmission Electron Microscopy.



- B. Transmission Electron Microscopy (TEM): After the work area is found to be visually clean and PCM air sampling completed, TEM air samples will be collected and analyzed by the Owner in accordance with the procedure for Transmission Electron Microscopy set forth in Part 1 of this section.
  - 1. If Release Criteria are not met, repeat Final Cleaning and continue Decontamination procedure from that point.
  - 2. If Release Criteria are met, remove work area isolation in accordance with requirements of this section.

### 3.7 FINAL AIR SAMPLING BY OWNER (PCM):

- A. Work Area Size Limitation: PCM without TEM sampling will be used to clear Work Areas where the ACM involved in the work are less than or equal to 160 square feet, or 260 linear feet (80 linear meters).
- B. Phase Contrast Microscopy (PCM): After the work area is found to be visually clean, air samples will be taken and analyzed by the Owner in accordance with the procedure for Phase Contrast Microscopy set forth in Part 1 of this section.
  - 1. If Release Criteria are not met, repeat Final Cleaning and continue Decontamination Procedure from that point.
  - 2. If Release Criteria are met, proceed to work of this Section on Removal of Work Area Isolation.

### 3.8 REMOVAL OF WORK AREA ISOLATION:

- A. After all requirements of this section and Section 01714 Work Area Clearance have been met:
  - 1. Shut down and remove the Pressure Differential System. Seal HEPA filtered fan units, HEPA vacuums and similar equipment with 6 mil (0.15 mm) polyethylene sheet and duct tape to form a tight seal at intake end before being moved from Work Area.
  - 2. Remove Personnel Decontamination Unit.
  - 3. Remove the Critical Barriers separating the Work Area from the rest of the building. Remove any small quantities of residual material found upon removal of the plastic sheeting with wet wiping, HEPA filtered vacuum cleaners and local area protection. If significant quantities, as determined by the Owner's Representative, are found then the entire area affected shall be decontaminated as specified in Section 01712 Cleaning & Decontamination Procedures.
  - 4. Remove all equipment, materials, debris from the work site.
  - 5. Dispose of all asbestos-containing waste material as specified in Section 02084 Disposal of Regulated Asbestos Containing Material.

### 3.9 SUBSTANTIAL COMPLETION OF ABATEMENT WORK:

- A. Asbestos Abatement Work is Substantially Complete upon meeting the requirements of this section including submission of:
  - 1. Certificate of Visual Inspection



2. Receipts Documenting proper disposal as required by Section 02084 Disposal of Regulated Asbestos-Containing Material.
3. Punch list detailing repairs to be made and incomplete items.

**3.10 CERTIFICATE OF VISUAL INSPECTION:**

- A. Section I of this specification includes a "Certificate of Visual Inspection". This certification is to be completed by the Contractor and certified by the Project Monitor. Submit completed Certificate with Application for Final Payment. Final payment will not be made until this Certification is executed.

**3.11 CERTIFICATE OF FINAL ACCEPTANCE:**

- A. Section I of this specification includes a "Certificate of Final Acceptance ". This certification is to be completed by the Contractor and certified by the Project Monitor. The certification will be forward to the Project Designer for validation purposes who in turn will provide this document to the designated Building Owner for final acceptance. Final payment will not be made until such time as this Certification is executed by all parties.

**END OF SECTION - 01711**



**CERTIFICATION OF VISUAL INSPECTION**

In accordance with Section 01711 "Project Decontamination" the Contractor hereby certifies that he has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_

(Print Name) \_\_\_\_\_

(Print Title) \_\_\_\_\_

**PROJECT ADMINISTRATOR CERTIFICATION**

The Project Administrator hereby certifies that he has accompanied the Contractor on the Contractor's visual inspection and verifies that this inspection has been thorough and to the best of their knowledge and belief, the Contractor's Certification above is a true and honest one.

by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_

(Print Name) \_\_\_\_\_

(Print Title) \_\_\_\_\_

NOT FOR BIDDING



## SECTION 01712 - CLEANING AND DECONTAMINATION PROCEDURES

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

#### 1.2 DESCRIPTION OF THE WORK:

- A. The work includes the removal of materials as indicated in Section 01013 of the specification or as indicated on the drawings associated with the work.

### PART 2 PRODUCTS (NOT APPLICABLE)

### PART 3 EXECUTION

#### 3.1 GENERAL:

- A. Complete the following before start of work of this section:
  - 1. 01527 Regulated Areas
  - 2. 01562 Respiratory Protection
  - 3. 01560 Worker Protection – Asbestos Abatement
  - 4. 01562 Respiratory Protection

#### 3.2 WET CLEANING:

- A. Accomplish wet cleaning during decontamination with paper towels or disposable rags:
- B. Immerse paper towel or rag in container of amended water or dilute removal encapsulant.
- C. Wring out,
- D. Fold into quarters,
- E. Wipe surface once and refold to a fresh face of cloth. Proceed in this manner until all available faces of paper towel or rag have been used.
- F. Dispose of paper towel or rag,
- G. Do not place rag back in container to rinse out or for any other purpose. If a used towel or rag comes in contact with water, empty container and refill.
- H. Material adhered to a surface with removal encapsulant may require the application of additional removal encapsulant to facilitate cleaning.



### 3.3 REMOVAL OF ASBESTOS-CONTAINING DEBRIS

- A. Work of this Section is associated with the work stipulated under Section 01013 and/or indicated on the drawings.
- B. Remove asbestos-containing debris and decontaminate the area involved using the following sequence:
1. Shut down all ventilation into room.
  2. Seal entry to work area with 6 mil (0.15 mm) polyethylene. Slit polyethylene for entry. Install a flap to cover the slit automatically; tape slit closed after entry.
  3. Start HEPA vacuum before entering the area.
  4. Use the HEPA vacuum to clean a path at least 6 feet (1.83 m) wide from the entry point of the work area to the site of the fallen material.
  5. Remove all small debris with the HEPA vacuum.
  6. HEPA vacuum surfaces of all pieces too large to be removed by the suction of the HEPA vacuum.
  7. Pick up such pieces and place in the bottom of a 6 mil (0.15 mm) polyethylene disposal bag conforming to the requirements of Section 02084 Disposal of Regulated Asbestos-Containing Material. Place pieces in the bag without dropping and avoiding unnecessary disturbance and release of material.
  8. Remove all remaining visible debris with HEPA vacuum.
  9. HEPA vacuum an area 3 feet (0.91 m) beyond the location in which any visible debris was found in two directions each at right angles to the other.
  10. Place a 6 mil (0.15 mm) polyethylene drop cloth in accordance with Section 01527, Local Area Protection, immediately on top of the HEPA vacuumed area before performing any repair work on site from which fall-out occurred.
  11. HEPA vacuum the site from which material fell removing all loose material which can be removed by the vacuums suction.
  12. Repair or remove remaining material.
  13. HEPA vacuum ladder and/or any tools used and pass out of the work area.
- C. HEPA vacuum all surfaces in the room starting at the top of wall and working downward to the floor. Then start at corner of floor farthest from Work Area entrance and work towards entrance.
1. HEPA vacuum the floor using a floor attachment with rubber floor seals and adjustable floor to attachment height. Adjust the height so that the rubber seals just touch the floor if carpeted and are within 1/16 inch (1.6 mm) of hard surface floors. Vacuum the floor in parallel passes with each pass overlapping the previous by one-half the width of the floor attachment. At the completion of one cleaning vacuum the floor a second time at right angles to the first.
- D. Secure area from occupancy until air monitoring results per Section 01714 Project Decontamination indicate that area is safe for reoccupancy.



### 3.4 CLEANING AND DECONTAMINATING OBJECTS

- A. Perform all work of decontaminating objects wherever possible on a plastic drop sheet installed in conformance with Section 01527.
- B. HEPA vacuum all surfaces of object and immediate area before moving the object.
- C. Pick-up object, if possible, and HEPA vacuum all surfaces.
- D. Hand to off-sheet worker who will wet-clean object, if possible, and place in storage location.
- E. Decontaminate area where object was located by HEPA vacuuming twice, in two perpendicular directions. Wet clean if necessary to remove any debris.
- F. Return object to its original location.

### 3.5 DECONTAMINATION OF ROOMS:

- A. Shut down all ventilation into space.
- B. Seal entry to Work Area with 6 mil (0.15 mm) polyethylene. Slit polyethylene for entry. Install a flap to cover the slit automatically; tape slit closed after entry.
- C. Install Differential Pressure System in accordance with Section 01513.
- D. HEPA vacuum all surfaces in the room starting at the ceiling, then top of wall and working downward to the floor.
- E. HEPA vacuum the floor using a floor attachment with rubber floor seals and adjustable floor to attachment height. Adjust the height so that the rubber seals just touch the floor if carpeted and are within 1/16 inch (1.6 mm) of hard surface floors. Vacuum the floor in parallel passes with each pass overlapping the previous by one half the width of the floor attachment. At the completion of one cleaning, vacuum the floor a second time at right angles to the first.
- F. Operate HEPA filtered fan unit in space for 96 air changes minimum.
- G. At completion of Decontamination Work workers decontaminate in accordance with Section 01561 Worker Protection - Repair and Maintenance.
- H. Secure area from occupancy until air monitoring results per Section 01714 Work Area Clearance indicate area is safe for reoccupancy.

END OF SECTION - 01712



## SECTION 02081 - REMOVAL OF ASBESTOS-CONTAINING MATERIALS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Worker Protection requirements are set forth in Section 01560 Worker Protection - Asbestos abatement.
- B. Installation of Critical and Primary Barriers, and Work Area Isolation Procedures are set forth in Section 01526 Temporary Enclosures.
- C. Project Decontamination procedures after removal of the Secondary Barrier are specified in Section 01711 Project Decontamination.
- D. Disposal of asbestos-containing waste is specified in Section 02084 Disposal of Regulated Asbestos-Containing Material.

#### 1.3 SUBMITTALS:

- A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.
  1. Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.
  2. Removal Encapsulant: Submit product data, use instructions and recommendations from manufacturer of removal encapsulant intended for use. Include data substantiating that material complies with requirements.
  3. NESHAP Certification: Submit certification from manufacturer of surfactant or removal encapsulant that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will wet Asbestos-Containing Materials (ACM) to which it is applied as required by the National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).
- B. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal has been "Received - Not Reviewed."
  1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for the following:
    - a. Surfactants.
    - b. Encapsulants.



- c. Solvents.

## PART 2 - PRODUCTS:

### 2.1 MATERIALS

- A. Wetting Materials: For wetting prior to disturbance of ACM use either amended water or a removal encapsulant:
- B. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five gallons (19 liters) of water.
- C. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a mixture of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether in five gallons (19 liters) of water.
- D. Polyethylene Sheet: A single polyethylene film in the largest sheet size practicable to minimize seams, 6.0 mil (0.15 mm) thick clear, frosted, or black as indicated.
- E. Duct Tape: Provide duct tape in 2 inch or 3 inch (50mm or 75 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.
- F. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.
- G. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled as required by Section 02084 Disposal of Regulated Asbestos Containing Material.
- H. Fiberboard Drums: Provide heavy duty leak tight fiberboard drums with tight sealing locking metal tops.
- I. Paper board Boxes: Provide heavy duty corrugated paper board boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.
- J. Felt: Standard felt approximately 1/16 inch (1.6 mm) thick and 36 inches (900 mm) to 72 inches (1800 mm) in width.

## PART 3 - EXECUTION

### 3.1 SECONDARY BARRIER:

- A. Secondary Barrier: Over the Primary Barrier, install as a drop cloth a clear 6 mil (0.15 mm) sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Where the work is within 10 feet (3 m) of a wall extend the Secondary Barrier up wall to ceiling. Support sheet plastic on wall with duct tape, seal top of Secondary plastic to Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet plastic and prevent its falling during removal operations.



1. Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.
2. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.
3. Install Walkways of black 6 mil (0.15 mm) plastic between active removal areas and decontamination units to protect Primary Layer from tracked material. Install walkways at the beginning of, and remove at the end of, each work shift.

### 3.2 WORKER PROTECTION:

- A. Before beginning work with any material for which a Material Safety Data Sheet has been submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

### 3.3 WET REMOVAL:

- A. Thoroughly wet to satisfaction of Owner's Representative ACM to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulant to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or removal encapsulant, or use injection equipment to wet material under the covering. Where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.
  1. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.
  2. Remove saturated ACM in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over and seal with minimum three wraps of duct tape. Clean outside and move to Wash Down Station adjacent to Material Decontamination Unit.
  3. Evacuate air from disposal bags with a HEPA filtered vacuum cleaner before sealing.
- B. Fireproofing or Architectural Finish on Wire Lath: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate material completely. Do not over-saturate to cause excess dripping. If surface of material has been painted or otherwise coated cut small holes as required and apply amended water or removal encapsulant from above. Cut wire lath into manageable sections and cut hanger wires. Roll or fold up complete with ACM and hand place in container. Do not drop on floor. After removal of lath and ACM remove any residual materials from decking and surrounding support members scheduled to remain. Use one of the following methods for containing waste.
  1. Deposit material in corrugated paper board box. When box is full duct tape closed and place in disposal bag.



2. Wrap material in felt and place in fiberboard drum lined with two disposal bags. Use caution to insure that all edges of wire lath that could cut plastic are covered with felt.

### 3.4 DRY REMOVAL:

- A. Dry Removal: of ACM is not expected to be required for this project. Some areas of work may require dry removal of asbestos where wetting may create a hazard for workers or damage equipment or finishes. In the event these conditions are identified the following will be required.
  1. Isolate dry removal area from balance of Work Area by a Critical Barrier as described in Section 01526 Temporary Enclosures and a pressure differential between the dry removal area and Work Area as described in Section 01513 Pressure Differential System.
  2. EPA Authorization: Do not begin dry removal work until authorized in writing by the EPA NESHAP coordinator and the Owner's Representative.
  3. OSHA Notification: Do not begin dry removal work until notification to OSHA required by 29 CFR 1926.1101(g)(4)(6) is made.
  4. Active Electrical Equipment: Do not wet materials in the vicinity of active electrical equipment. Dry remove any ACM in the vicinity of active electrical equipment.
  5. Restrict Access: Maintain existing access restrictions to areas with active electrical equipment. Allow access to area only to qualified trades persons with prior experience in the installation and repair of involved equipment.
  6. Warning Signs: Post warning signs at the entry point to active electrical equipment as required by OSHA or other applicable regulation.
  7. Personnel: Work on active electrical equipment is to be performed by qualified trades persons with prior experience in the installation or repair of the involved equipment. Restrict access to electrical equipment.
  8. Electrical Isolation: Cover exposed conductors with a minimum 1/8 inch (3 mm) thick neoprene blanket draped over the conductor and surrounding area.
  9. Protective Equipment: Provide workers working on or in the vicinity of active electrical with appropriate protective equipment including insulating gloves, boots, and non-conductive tools.
  10. Work Procedures: Perform removal work using "Localized Control of Material Release" and "Local Ventilation and Collection System" procedures described below.

END OF SECTION - 02081



## SECTION 02084 - DISPOSAL OF REGULATED ASBESTOS-CONTAINING MATERIAL

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Worker protection requirements are set forth in Sections 01560 Worker Protection - Asbestos abatement
- B. Section 01098 Codes, Regulations and Standards - Asbestos Abatement describes applicable federal, state and local regulations.

#### 1.3 DESCRIPTION OF THE WORK:

- A. This section describes the disposal of Regulated Asbestos-Containing Materials (RACM). Disposal includes packaging of Regulated Asbestos-Containing Materials.
- B. All asbestos waste generated from this project shall be disposed of at Cherry Island Landfill located in Wilmington, Delaware.

#### 1.4 SUBMITTALS:

- A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.
  - 1. Copy of state or local license for waste hauler.
  - 2. Name and address of landfill where Regulated Asbestos Containing Materials are to be buried. Include contact person and telephone number.
- B. On a weekly basis submit copies of all manifests and disposal site receipts to Owner's Representative.
- C. Waste Shipment Record: Maintain a waste shipment record as required by the NESHAP regulation which indicates the waste generator, transporter, and disposal site, and which describes the nature, size, type of container, and form of asbestos waste. Submit to Owner's Representative within 35 days of departure from building.

### PART 2 - PRODUCTS:

#### 2.1 MATERIALS

- A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled with three labels with text as follows:



1. First Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD  
BREATHING AIRBORNE  
FIBERS IS  
HAZARDOUS TO YOUR HEALTH

2. Second Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances

RQ-ASBESTOS WASTE  
CLASS 9  
NA2212-PG III

3. Third Label: Provide the name of the waste generator (Owner's name), the location from which the waste was generated and the names and addresses of the contractor and transporter. This label must be durable, able to repel dirt and moisture (e.g., permanent marker). Label must be placed directly on disposal bag(s) in a legible format. Peel and stick type labels are expressly prohibited.

### PART 3 - EXECUTION

#### 3.1 SEQUENCE

- A. Comply with the following sections during all phases of this work:
  1. Section 01560 Worker Protection - Asbestos Abatement
  2. Section 01562 Respiratory Protection

#### 3.2 GENERAL:

- A. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.
- B. Liquid waste: Mix all liquid asbestos-containing waste or asbestos contaminated waste with a bladeable material so that it forms a bladeable (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.
- C. Load all adequately wetted Regulated Asbestos-Containing Material in disposal bags or leak-tight containers. All materials are to be contained in one of the following
  1. Two 6 mil (0.15 mm) disposal bags or
  2. Two 6 mil (0.15 mm) disposal bags and a fiberboard drum



- D. Protect interior of truck or dumpster with Critical and Primary Barriers as described in Section 01526 Temporary Enclosures.
- E. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.
- F. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign complying with requirements of the EPA NESHAP regulation (40 CFR Part 61), in a manner and location that a person can read the following legend:

DANGER  
ASBESTOS DUST HAZARD  
CANCER AND LUNG DISEASE HAZARD  
Authorized Personnel Only

- G. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.
- H. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Treat drums that have been contaminated as Regulated Asbestos-Containing Material and dispose of in accordance with this specification.
- I. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.
- J. At disposal site unload containerized waste:
  - 1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for re-bagging. Clean entire truck and contents using procedures set forth in section 01711 Project Decontamination.
- K. Retain receipts from landfill for materials disposed of.
- L. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to Owner's Representative.

END OF SECTION - 02084



**SECTION 02087 - RESILIENT FLOORING REMOVAL - AGGRESSIVE ASBESTOS ABATEMENT:**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.

**1.2 RELATED WORK SPECIFIED ELSEWHERE:**

- A. Asbestos abatement project requirements to be completed prior to start of the work of this section are set forth in the following sections:
1. 01503 Temporary Facilities - Asbestos Abatement
  2. 01513 Temporary Pressure Differential & Air Circulation System
  3. 01526 Temporary Enclosures - Complete Work Except Delete Floor Plastic.
  4. 01527 - Regulated Areas
  5. 01560 Worker Protection - Asbestos abatement
  6. 01562 Respiratory Protection
  7. 01563 Decontamination Units
- B. Asbestos abatement project requirements to be completed at completion of the work of this section are set forth in the following sections:
1. 01711 Project Decontamination

**1.3 SUBMITTALS:**

- A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.
1. Wetting Materials: Submit product data, use instructions and recommendations from manufacturer of wetting material (surfactant and/or removal encapsulant) intended for use. Include data substantiating that material complies with requirements.
  2. NESHAP Compliance Documentation: Submit manufacturer's documentation for removal encapsulants proposed for use that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will comply with the wetting requirements of National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).
  3. NESHAP Compliance Documentation: Submit written approval from the EPA NESHAP Coordinator, in compliance with applicable requirements of National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M), for the use of shot/bead blast equipment for adhesive removal.



4. Plan of Action for Dry Ice Use: Submit a plan of action as required by this section for protection of workers from carbon dioxide and cold hazards associated with use of dry ice. Testing and protective measures proposed are to be certified by a Certified Industrial Hygienist (CIH) as defined in Section 01097 "Definitions & Standards - Asbestos Abatement".
  5. Adhesive Removal Solvent: Submit product data, use instructions and recommendations from manufacturer of adhesive removal solvent intended for use. Include data substantiating that material complies with requirements.
- B. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal has been "Received - Not Reviewed."
1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for all materials proposed for use on the work including:
    - a. Surfactants.
    - b. Adhesive Removal Solvents.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Wetting Materials: For wetting prior to disturbance of asbestos-containing materials use:
1. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the asbestos-containing material (ACM) and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five gallons (19 liters) of water.
  2. Removal Encapsulant: Provide a penetrating-type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the asbestos-containing material and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five gallons (19 liters) of water.
  3. Dishwashing detergent that contains anionic, nonionic, and amphoteric surfactants.
- B. Tile Adhesive Removal Solvent: Provide a slow-drying solvent intended to remove tile adhesive. Provide material that is not flammable, does not create combustible vapors and has no significant inhalation hazard.
1. Provide materials that have less than 250 g/l of volatile organic solvents (VOCs).
- C. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.



- D. Duct Tape: Provide duct tape in 2 inch or 3 inch (50 or 75 mm) widths as indicated, with an adhesive formulated for use on sheet polyethylene.
- E. Spray Cement: Provide, in aerosol cans, spray adhesive which is formulated for use on sheet polyethylene. Provide materials that do not contain methylene chloride.
- F. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled as required by Section 02084 Disposal of Regulated Asbestos-Containing Material.
- G. Fiberboard Drums: Provide heavy duty leak-tight fiberboard drums with tight sealing locking metal tops.
- H. Paper board Boxes: Provide heavy-duty corrugated paperboard boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.
- I. Polyethylene Boxes: Provide heavy-duty polyethylene boxes. Provide leak-tight boxes or boxes in sizes that will easily fit in disposal bags.

## 2.2 PRIMARY RESILIENT FLOORING REMOVAL EQUIPMENT

- A. Manual Spades:
  - 1. Hand operated scraper/chisels with long handles and replaceable blades for removal of resilient flooring.
- B. Powered Spades:
  - 1. Long-handled scraper/chisels used in a full-standing position that have replaceable blades and are pneumatically or electrically-powered to move in a reciprocating (in and out) motion.
  - 2. Provide powered spades that are equipped with pneumatic vents and piston seals that prevent compressed air or blow by from sweeping floor.

## PART 3 - EXECUTION

### 3.1 RESILIENT FLOOR COVERINGS:

- A. Pre-requisite activities: Before starting removal of ACM using the procedures of this section complete work of the following sections:
  - 1. 01503 Temporary Facilities - Asbestos Abatement
  - 2. 01513 Temporary Pressure Differential & Air Circulation System
  - 3. 01526 Temporary Enclosures - Complete work except delete floor plastic.
  - 4. 01527 - Regulated Areas
  - 5. 01560 Worker Protection - Asbestos abatement
  - 6. 01562 Respiratory Protection
  - 7. 01563 Decontamination Units



- B. Preparation: Prior to beginning the removal of any resilient floor covering complete the following:
1. Remove appliances and furniture from the work area.
  2. Mix a detergent solution (16 ounces (0.5 liters) of liquid dishwashing detergent to 1 gallon (4 liters) of warm water) and pour into a garden sprayer.
- C. Seal Floor Penetrations: Before using wet methods to remove resilient flooring, seal openings, and penetrations in the floor to prevent water leakage.
1. Remove surface mounted junction boxes (doghouses) from raceway system.
  2. Remove hatch and trench covers that are covered with resilient flooring. Seal opening with plywood. Seal edges of plywood to floor with urethane foam caulk. Remove resilient flooring from cover in a later operation during wet removal of flooring.
  3. Seal openings with a wooden or plywood plug. Seal with urethane foam caulk.
  4. Remove flooring material in the immediate area of floor penetrations with a hand spade or scraper.
  5. Remove adhesive by hand scraping as necessary to permit installation of seals.
  6. Remove any adhesive residue from slab where cover on openings and penetrations must seal to floor to accomplish a water tight assembly. Remove this residue by abrasion using dampened, clean, sharp, cutting sand and a hand-held rubbing stone as necessary. Use minimum wetting required to permit removal. Use caution to prevent water leakage into opening or penetration.
  7. Cover sealed plywood hatch assemblies with 6 mil sheet plastic. Seal plastic to floor with spray glue or urethane caulk.
  8. Cover sealed openings with sheet plastic. Seal plastic to floor with spray glue or urethane caulk.
- D. Remove Resilient Flooring: Use the three step process described in the following sections:
1. First Step: "Removal of Resilient Tile Floor Covering," and/or "Removal of Resilient Sheet Flooring." This step involves removal of tiles or the wear layer of sheet flooring using a powered spade.
  2. Second Step: "Removal of Heavy Residue of Adhesive" and/or "Removal of Residual Backing." This step involves the use of a rotary cutter to remove the bulk of these residual materials. As an alternative hand scraping can be used for this purpose.
  3. Third Step: "Removal of Adhesive Residue." After completion of the first two steps there will be a thin residue of adhesive left on the floor.
  4. At the completion of all work, leave the substrate in such a state as to comply with all requirements and recommendations of manufacturer of replacement flooring.

### 3.2 STEP ONE REMOVAL OF RESILIENT TILE FLOOR COVERING:

- A. Remove resilient tile floor covering using the following procedure:
1. General:



- a. Remove binding strips or other restrictive molding from doorways, walls, etc. clean and dispose of as non-asbestos waste. Dispose of any materials that have glue or floor mastic on them as asbestos-containing waste.
2. Wet Floor:
  - a. Wet floor with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Cover with sheet polyethylene to allow humidity to release tile from floor. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
  - b. Keep floor continuously wet throughout removal operation.
  - c. Remove tiles using a manual or powered spade. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor where tile has been removed continuously wet until after completion of heavy adhesive residue removal.
- B. Debris and Waste
  1. Dispose of all friable materials in accordance with Section 02084 Disposal of Regulated Asbestos containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
  2. Pick up whole tiles, stack, place in boxes or wrap in felt, and place in labeled disposal bags. At the Contractor's option tiles may be placed directly into durable leak-tight containers.
  3. Shovel broken tiles and debris into cardboard boxes that are placed in a disposal bag.
  4. Place bagged waste in a second disposal bag during decontamination and dispose of waste as required by Section 02084 Disposal of Regulated Asbestos-Containing Material.

### 3.3 STEP TWO - REMOVAL OF HEAVY RESIDUE OF ADHESIVE:

- A. Remove the heavy residue of adhesive left after removal of resilient tile flooring using the following procedure.
  1. Dampen Floor
    - a. Dampen floor by misting with amended water, removal encapsulant, or detergent solution so that entire surface is wet. Do not allow to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions.
    - b. Keep floor continuously damp throughout removal operation.
  2. Adhesive Removal:
    - a. Begin removal at a point farthest from the entrance to the work area. Work of this step may proceed concurrently with work of removal of tile.



- b. Remove heavy residue of adhesive backing. Continuously mist floor in area of work with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet.
3. Disposal and Debris
  - a. Dispose of all friable materials in accordance with Section 02084 Disposal of Regulated Asbestos containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
4. Wet vacuum standing water with HEPA wet/dry vacuum.
5. Mop floor with amended water, removal encapsulant, or liquid detergent solution to remove all debris and residue.
6. Continue the above steps until the adhesive is sufficiently removed to a point where a bulk sample cannot be taken of the adhesive material.
7. Start in the corner of the room farthest from the entrance door and moisten an area of the adhesive approximately 3 by 10 feet with amended water, removal encapsulant, or detergent solution. Wet scrape with a stiff-bladed wall or floor scraper removing ridges and any loose adhesives until only a thin smooth film remains. Where deposits are heavy or difficult to scrape, heat with a hot-air blower prior to scraping.
  - a. Dispose of all friable materials in accordance with Section 02084 Disposal of Regulated Asbestos Containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
8. Wet vacuum standing water with HEPA wet/dry vacuum.
9. Mop floor with amended water, removal encapsulant, or liquid detergent solution to remove all debris and residue.
10. Continue the above steps until the adhesive is sufficiently reduced in thickness that it can be effectively removed.

### 3.4 STEP THREE - ADHESIVE SOLVENT:

- A. Adhesive: Remove adhesive residue by using adhesive removal solvents. Use solvents in accordance with manufacturers' instructions. Saturate adhesive with removal solvent and allow adhesive to soften. Remove by scraping, or wet scrub with floor cleaning machine with abrasive pad. Provide worker protection as required by material safety data sheet (MSDS) for any material used.
  1. Mop floor with removal solvent as required by manufacturer's directions as required to completely remove all residue of adhesive.
  2. Clean Floor after completion of removal of ACM by wet mopping with amended water. Mop three times allowing a drying time between each mopping.
  3. Encapsulate cleaned floor with one coat of an encapsulant. Use an encapsulant that has been determined not to prevent the bond of new resilient flooring. Follow manufacturer's recommendations for new floor covering installation.

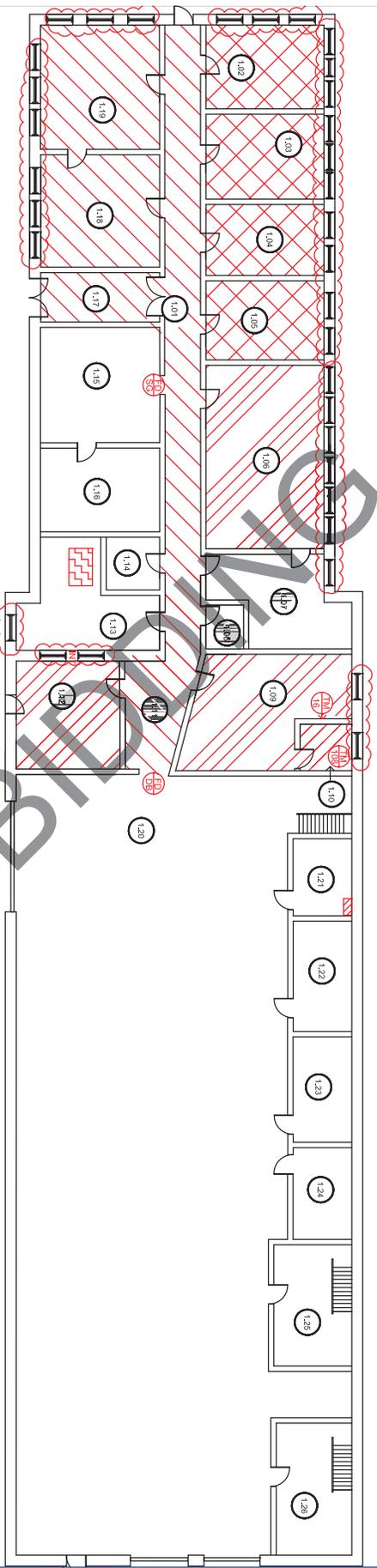


4. Dispose of all rags, plastic sheet, etc. in accordance with requirements of Section 02084 "Disposal of Regulated Asbestos-Containing Material".
- B. Decontaminate Equipment: After the completion of all work, decontaminate all equipment and machinery used for work of this section. Accomplish decontamination as required by the section on Project Decontamination.

### 3.5 WORK AREA CLEARANCE:

- A. After completion of all resilient flooring and adhesive removal work and prior to removal of critical barriers, decontamination units, and shut down of pressure differential and ventilation system; complete project decontamination and clearance in accordance with section 01711 "Project Decontamination."

END OF SECTION 02087



**GENERAL NOTES:**

1. PRESENTATION OF INFORMATION IS BASED ON BEST AVAILABLE INFORMATION. DRAWING SCHEMATICS WERE EDITED FOR MATERIALS NOTATIONS BY HARVARD ENVIRONMENTAL INC. FROM FIELD SKETCHES AND PRINTS PROVIDED BY DUFFILED ASSOCIATES.
2. HARVARD PROJECT #19432, DUFFIELD PROJECT #9463, CD INVOLVES ASBESTOS ABATEMENT SPECIFICATIONS OF INTERIOR AND EXTERIOR ASBESTOS CONTAINING MATERIALS (ACM). THESE DRAWINGS ARE NOT TO BE CONSIDERED TO SCALE AND ARE INTENDED TO BE USED FOR ORIENTATION PURPOSES ONLY AND IDENTIFYING THE LOCATIONS OF ACM.

**SCOPE SPECIFIC NOTES:**

1. CONTRACTOR SHALL PROVIDE ALL TEMPORARY ELECTRIC AND WATER AND SANITARY SERVICES TO SUPPORT THE PROJECT.
2. INDUSTRY STANDARD HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN FULL CONTAINMENTS FOR INTERIOR FLOORING, TRANSITE, BUILDING CAULK, BOILER DISMANTLEMENT AND FIRE DOORS.
3. INDUSTRY STANDARD NON-FRIABLE HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN EXTERIOR REGULATED AREAS FOR ROOFING TRANSITE PANELS, WINDOW CAULK, ROOFTOP CAULKING AND TARS MATERIALS.

	ASBESTOS INTERIOR AND EXTERIOR WINDOW CAULK - 32 EACH, ESTIMATED 776 LF TOTAL		ASBESTOS INTERIOR WINDOW CAULK - 2 EACH, ESTIMATED 40 LF TOTAL
	ASBESTOS 9x9 FLOOR TILE (NO MASTIC) - EST. 1,740 SF		ASBESTOS BOILER INTERNAL AND EXTERNAL GASKETS AND PACKING - 4'L X3W X4H IN SIZE EST. 20 CF OF MATERIALS
	ASBESTOS 9x9 FLOOR TILE AND MASTIC - EST. 1,216 SF		ASBESTOS TRANSITE WALL PANELS - ESTIMATED 124 SF TOTAL
	ASBESTOS 12x12 FLOOR TILE (NO MASTIC) - EST. 1,320 SF		ASBESTOS FIRE DOOR - DOUBLE DOOR 1 EACH
	ASBESTOS BLACK BUILDING CAULK - EST. 10 LF IN GRID 1.21		ASBESTOS FIRE DOOR - SINGLE DOOR 1 EACH

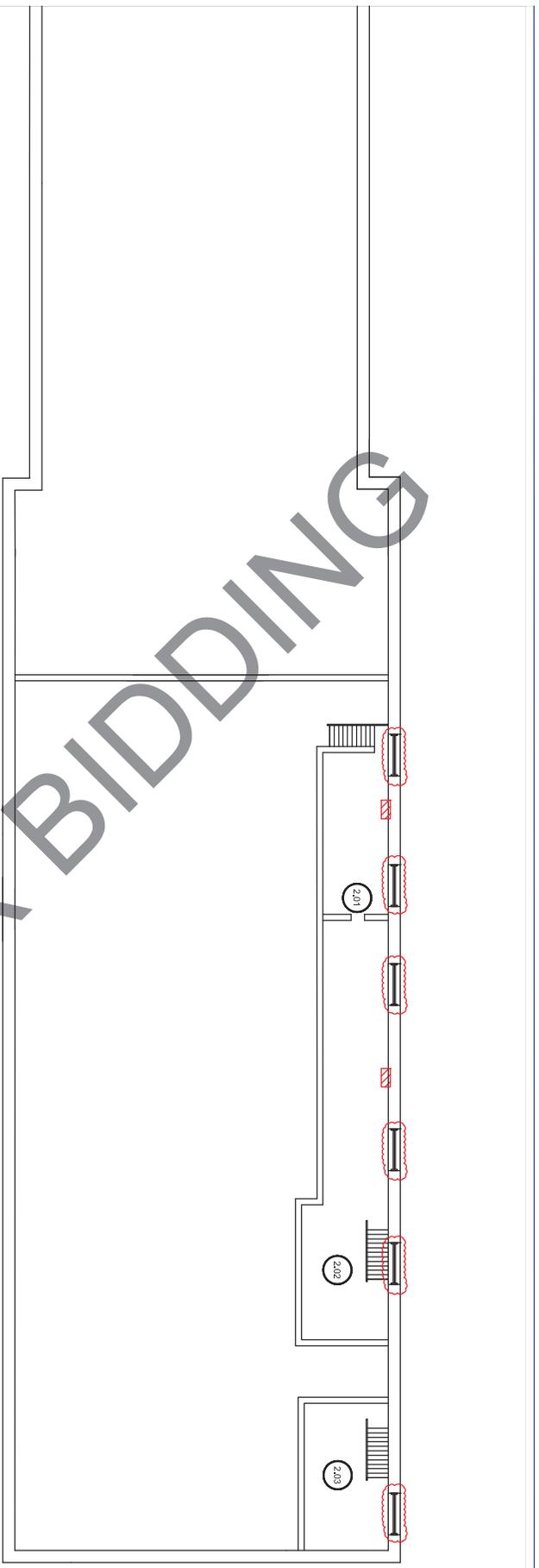
**DELAWARE ARMY NATIONAL GUARD**  
 250 AIRPORT ROAD  
 NEW CASTLE, DE 19720

FORMER SEAFORD ARMOY  
 23440 ROSS STATION ROAD  
 SEAFORD, DE 19973

REV BY: VMG/M  
 DWG BY: VMPS  
 5-21-18  
 TAD P#19432  
 DWG 19432.1

**ASBESTOS ABATEMENT SPECIFICATIONS 1ST FLOOR**

**HARVARD Environmental, Inc.**  
 760 Pulaski Highway  
 Bear, Delaware 19701  
 1-302-326-2333



**GENERAL NOTES:**

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2. HARVARD PROJECT #19432. DUFFIELD PROJECT #9463 CD INVOLVES ASBESTOS ABATEMENT SPECIFICATIONS OF INTERIOR AND EXTERIOR ASBESTOS CONTAINING MATERIALS (ACM). THESE DRAWINGS ARE NOT TO BE CONSIDERED TO SCALE AND ARE INTENDED TO BE USED FOR ORIENTATION PURPOSES ONLY AND IDENTIFYING THE LOCATIONS OF ACM.

**SCOPE SPECIFIC NOTES:**

1. CONTRACTOR SHALL PROVIDE ALL TEMPORARY ELECTRIC AND WATER AND SANITARY SERVICES TO SUPPORT THE PROJECT.
2. INDUSTRY STANDARD HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN FULL CONTAINMENTS FOR INTERIOR FLOORING, TRANSITE, BUILDING CAULK, BOILER DISMANTLEMENT AND FIRE DOORS.
3. INDUSTRY STANDARD NON-FRIABLE HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN EXTERIOR REGULATED AREAS FOR ROOFING, TRANSITE PANELS, WINDOW CAULK, ROOFTOP CAULKING AND TARPS MATERIALS.



ASBESTOS INTERIOR AND EXTERIOR WINDOW CAULK - 6 EACH, ESTIMATED 75 LF TOTAL



ASBESTOS BLACK BUILDING CAULK - EST. 11 LF TOTAL ON 2ND FLOOR/LOFT LEVEL

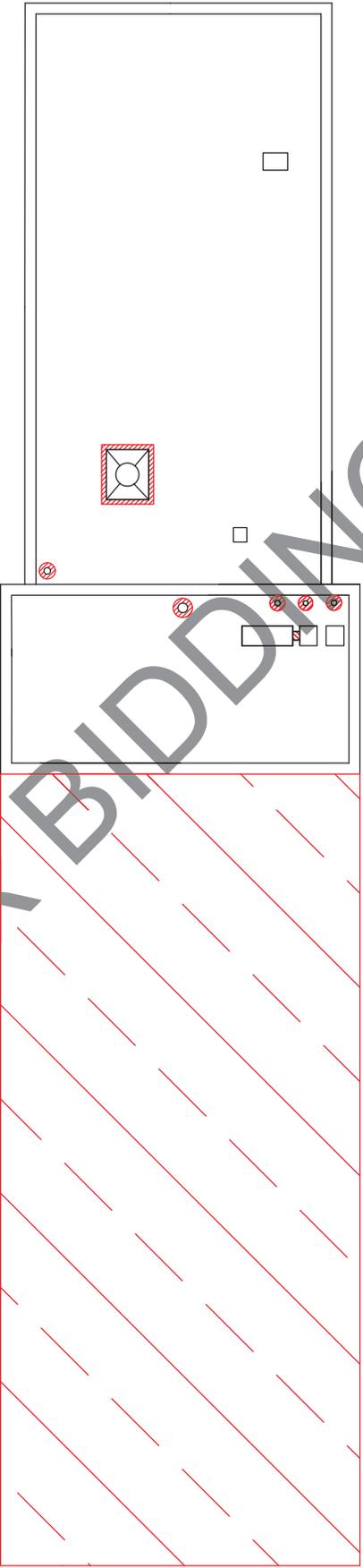


**ASBESTOS ABATEMENT SPECIFICATIONS 2ND FLOOR/LOFT PLAN**

REV BY: VJGM  
 DWG BY: MFS  
 5-21-18  
 IAD P# 19432  
 DWG 19432Z

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 SEAFORD, DE 19973

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**GENERAL NOTES:**

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**SCOPE SPECIFIC NOTES:**

1. CONTRACTOR SHALL PROVIDE ALL TEMPORARY ELECTRIC AND WATER AND SANITARY SERVICES TO SUPPORT THE PROJECT.
2. INDUSTRY STANDARD HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN FULL CONTAINMENTS FOR INTERIOR FLOORING, TRANSITE, BUILDING CAULK, BOILER DISMANTLEMENT AND FIRE DOORS.
3. INDUSTRY STANDARD NON-FRIABLE HAND TOOL REMOVAL METHODS SHALL BE USED WITHIN EXTERIOR REGULATED AREAS FOR ROOFING, TRANSITE PANELS, WINDOW CAULK, ROOFTOP CAULKING AND TARPS MATERIALS.

-  ASBESTOS CORRUGATED TRANSITE ROOF EST. 7,560 SF
-  ASBESTOS TAP AROUND CHIMNEY AND VENT PIPES. EST. 50 LF
-  ASBESTOS DUCT SEALANT - EST. 20 LF



**ASBESTOS ABATEMENT SPECIFICATIONS ROOF PLAN**

REVW BY: VJGM  
 DWG BY: TMS  
 5-21-18  
 TPO P# 19432  
 DWG 19432.3

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