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General Specification

Asbestos Abatement Project

Jim Whelan Boardwalk Hall
West Hall – Pacific Avenue
(Bid Copy)

Prepared For:

SPECTRA Venue Management
2301 Boardwalk
Atlantic City, New Jersey 08401

Prepared By:

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Approved & Released:
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Service Disabled Veteran Owned Small Business

EDI

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Jim Whelan Boardwalk Hall

WEST HALL – PACIFIC AVENUE ASBESTOS ABATEMENT PROJECT

Section One: General Requirements

1. Scope of Work

1.1. The work to be performed under this Contract consists of furnishing all materials, equipment, supplies, labor, supervision, transportation, fuel, power, water, except materials, equipment, utility service, if any, specified herein to be furnished by the Owner/Representative, and the performance of all work in strict accordance with the specifications, schedules and plans. The Contractor is responsible for the field verification of all material quantities and conditions affecting the work. The work shall be complete, and all work, material and services not expressly called for in the specifications or not shown on the drawings, which may be necessary for complete and proper construction to carry out the Contract in good faith, shall be performed, furnished and installed by the Contractor at no increase in cost to the Owner/Representative. Qualified, careful and efficient certified workmen shall execute the work in the best and most workmanlike manner.

1.2. The Contractor will not be responsible for damage to piping, electrical conduit, or any other lines or equipment enclosed in the work area, which is caused by or results from an existing advanced state of deterioration or the negligence of the Building Owner/Representative.

1.3. Times of Completion of the Project. Completion date(s) for projects shall be stated in terms of actual date(s) or the number of calendar days after the notice to proceed with the work.

1.4. Project Description: This project involves the proper removal and disposal of all non-asbestos containing ceiling materials, its support structure, drywall facia, asbestos containing spray applied fireproofing, and thermal system insulation (pipe and duct insulation if present) from the designated West Hall ceiling areas along the Pacific Avenue side of the building by the loading dock/ramp area as shown on the drawings. The project will require the installation of a scaffolding platform beneath the designated ceiling area in the West Hall to be used to construct the containment area. Ceiling replacement, reinsulation, and restoration of fire ratings is not included in this request for bid.

1.4.1. All work in the West Hall shall be conducted in an **occupied** building as permissible by N.J.A.C. 5:23-8.19 and any approved variations. The Contractor is responsible for obtaining and paying for all applicable notifications. EDI will apply for the variances and permits.

1.5. Project Dates: All specified work is tentatively scheduled to begin on February 12, 2020 and shall be complete not later than 5 p.m. March 6, 2020, the contractor shall be given (17) working days to complete the work to include issuance of a Certificate of Completion. Start and Completion dates are approximate and pending State approvals, and issuance of permits, variances, and other required project paperwork.

1.5.1. The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner and EDI's information, a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, and shall provide for expeditious and practicable execution of the Work.
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1.5.2. The Contractor shall prepare and keep current, for EDI's approval, a schedule of submittals that is coordinated with the Contractor's construction schedule and allows EDI reasonable time to review submittals.

1.6. Inspection: Prior to commencement of work, the abatement Contractor shall inspect the areas in which work will be performed. Prepare a listing of damage to structure, surfaces, and equipment or of surrounding properties, which could be misconstrued as damage resulting from the work. The contractor is responsible to photograph or videotape existing conditions as necessary to document conditions. Submit to Owner's Representative prior to starting work.

1.7. Stop Work: If the Owner, the Owner's Representative, or the Asbestos Safety Technician (AST) presents a written stop work order, immediately and automatically stop all work. Do not recommence work until authorized in writing by the Owner's Representative.

1.8. West Hall Ceiling Abatement Area – Pacific Avenue Loading Dock to Storage Area: The contractor shall be responsible for the proper removal and disposal of all spray applied asbestos containing fireproofing from, but not limited to: walls, beams, ceiling deck, ductwork, and all thermal system insulation (piping and duct insulation, if any), to include designated non-asbestos ceilings, its support structure, drywall facia, its support structure, designated lighting, and HVAC diffusers, if any. Lighting and HVAC components shall be cleaned and retained for reuse or cleaned in-place and covered. HVAC components shall be decontaminated and retained. The Contractor shall construct a suitable engineered scaffolding platform beneath the entire ceiling area in the West Hall to facilitate the installation of one containment area in the West Hall from the Loading Dock/Ramp Entrance to the Storage Area on the scaffolding platform (a.k.a. dance floor).

1.8.1. There are approximately 17,300* square feet of asbestos containing fireproofing requiring removal and disposal from concrete decking, metal Q-Decking, walls, structural support beams, and equipment. *Approximation includes calculation for overspray, beams, walls, etc. The Contractor is responsible to field verify all material quantities and site conditions prior to submitting a bid.

1.8.2. There are approximately 7,300 square feet of non-asbestos suspended acoustical ceilings, 1,200 square feet of drywall facia covering a structural beam, and their respective support structures requiring removal and disposal. *Ceilings & drywall facia are to be considered asbestos contaminated and disposed of as such. The Contractor is responsible to field verify all material quantities and site conditions prior to submitting a bid.

1.8.3. All non-asbestos or asbestos containing pipe or duct insulation, associated fittings, shall be removed and properly disposed of, if present.

2. Work Area Preparations/Removal Procedures – Full Containment

2.1. Work area preparations and procedures shall be in full compliance with N.J.A.C. 5:23-8.15, & 5:23-8.19 and any applicable approved variations. All materials used for work area preparation shall be fire rated as required by code. Note: New Jersey Department of Community Affairs is the Authority with jurisdiction over this project and is responsible for the issuance of all permits, variances, and closeout paperwork, which may cause delays.

2.2. The AST must call N.J.D.C.A. (609-633-6723) to notify them of the project start on the 1st Day of permitted abatement work.

2.3. The Contractor shall install a scaffolding platform in the West Hall from the Loading Dock/Ramp Area to the Storage Area along Florida Avenue, suitably positioned beneath the suspended ceiling to allow work area preparations and ensure the distance from the scaffolding platform to the ceiling deck does not exceed 15', and allows workers to work off standard 6-8 foot ladders. The scaffolding shall be constructed in such a manner to allow Contractor staging of equipment, personnel, storage of supplies, and positioning of the decontamination chamber beneath it. The scaffolding deck shall extend out no more than (5) feet under the structural beam running the length of the work area. *Care shall be taken at the Ramp end of the containment to ensure the containment/scaffolding *does not extend into the ramp area entrance into West Hall blocking truck access entering the building*. The scaffolding/containment extending outward beneath the beam shall be visibly marked with high-visibility streamers, cones, or other signage to clearly show drivers its location.

2.4. The Contractor shall install separation barrier(s) extending from the wall above the structural beam to the floor completely enclosing the work area where indicated on the drawings. The Contractor shall use nominal 1/2" plywood, framed 16" on center, with 2-layers of 6-mil poly sheeting on both sides of the plywood sheeting to cover the separation barrier. Post asbestos hazard warning signs as required. All pipe/conduit/duct penetrations shall be properly sealed with fire rated expandable foam or approved substitute. Please refer to N.J.A.C. 5:23-8.19 (C) 1 for specific construction details.

2.5. The Contractor shall install critical barriers consisting of at minimum 2 separate layers of 6-mil poly sheeting or expandable foam where appropriate, over all windows, doors, HVAC diffusers, and penetrations in the work area. *There are numerous areas that will require asbestos containing fireproofing to be removed in order to facilitate the installation of critical barriers. See Special Conditions.

2.6. The Contractor shall install *a minimum* of (2) additional layers of 6-mil, ***reinforced,*** poly sheeting over the scaffolding deck. This poly is to remain in place as a critical barrier through final air testing. *This poly is in addition to the required (2) layers of floor poly required by the sub-code.

2.7. The Contractor shall install a decontamination chamber attached directly to the work area beneath the scaffolding. The Contractor, may, at their option, install a separate waste only decontamination chamber, location to be determined and approved by the ASCM. Make-up air shall flow through from the outside through the rollup door at the loading dock. Construction of a plywood separation barrier will be required with a lockable, louvered doorway, to provide access and make-up air while the rollup doorway is open and provide adequate site security. Waste staging shall be in the loading dock area. Supplemental heat may be required, dependent on temperature of the makeup air at the time of the abatement. Carbon Monoxide monitors will be required as needed.

2.8. The Contractor shall complete **all** remaining full containment work area preparations in accordance with N.J.A.C. 5:23-8.15, 5:23-8.19, and approved variations up to the drop ceilings. Remaining work area preparations, above the drop ceiling, will be per approved variations. The AST shall calculate the proper work area volume to include the area above the drop ceilings when determining the number of HEPA units to achieve -.05" w.c. negative pressure in the work area(s). Negative pressure shall be maintained equal to or greater than -0.05 inches w.c. per code section N.J.A.C. 5:23-8.19 (c) 4 (6) i i (1) – (5). The Contractor shall supply all required digital continuous print out manometers. If an area is used for make-up air, other than the decontamination chamber, this will require a separate manometer. See "Contingency Plan" for more information.

2.9. After all work area preparations have been completed, and the work area has been conditionally approved by the onsite Asbestos Safety Technician (AST) and the Contractor Supervisor, the AST will notify N.J.D.C.A. as required for a Pre-Commencement inspection. Following N.J.D.C.A. approval or waiver of the inspection, a written "Notice to Proceed" shall be issued. The AST must call N.J.D.CA. 609-633-6723 for Pre-Commencement Inspection.

2.10. The Contractor following gross removal activities and a satisfactory cleanup and pre-sealant inspection, shall thoroughly encapsulate the work area utilizing an approved tinted lock down encapsulant.

2.11. Following a satisfactory clean up inspection by the AST and the Contractor supervisor, final air sampling by transmission electron microscopy shall be conducted in accordance with N.J.A.C. 5:23-8.21.

2.12. Following receipt of satisfactory final air clearance, the AST will issue a "Notice to Remove Barriers" as appropriate for each work area. The contractor will ensure the work area has been thoroughly cleaned and inspected *before* requesting a Final Inspection from the AST. The AST must call N.J.D.CA. 609-633-6723 for Final Inspection. All waste containers *must be removed from the site* prior to the issuance of the Certificate of Completion per N.J.A.C. 5:23-8.8 (b).

2.13. The portion of the building where abatement occurred may not be re-occupied until N.J.D.C.A. has issued a "Certificate of Occupancy" per N.J.A.C. 5:23-8.8 (a).

3. Special Conditions/Requirements

3.1. **Duct Removal**: Sections of ductwork may need to removed in order to facilitate the removal of ACM. The exterior of the ductwork requiring removal, if any, shall be thoroughly cleaned and inspected, then wrapped with (2) layers of poly sheeting and disconnected. The Contractor shall be responsible to reconnect any removed ductwork. The openings in the duct that are created shall be immediately sealed with (2) layers of 6-mil poly sheeting. Post abatement the Contractor shall clean the interior of the duct sections that were exposed during the removal process and restore the ductwork to its original condition.

3.2. **Critical Barriers – Limited Abatement**: Where necessary and/or as directed by the AST, the Contractor shall perform limited localized removal of fireproofing, utilizing approved industry standard procedures to facilitate the installation of critical barriers and/or separation barriers to contain and isolate the work area. Some of the walls along the exterior side of the building *may* be open at the top, above the drop ceiling, housing various structural components and ductwork in some areas. The structural components have been sprayed with fireproofing with substantial overspray/debris on and in the wall sections, structural supports, ductwork, etc. The Contractor shall perform limited localized removal, as required, capturing as much fireproofing as possible from falling down into the wall sections and then install (2) layers of 6-mil fire rated poly sheeting properly taped and supported with furring strips in these areas. The AST shall inspect each area while work is being conducted.

3.3. **Building's Equipment Operation**: The Owner is responsible for the start-up and shutdown of any or all equipment on an "as needed" basis to facilitate the asbestos removal project. The Contractor shall be responsible for giving adequate notice to coordinate any equipment operation necessary.

3.4. **Temporary Services - Water Supply**: The Owner/Representative will designate a connection for water supply to the work area. The Contractor shall utilize an approved heavy-duty water hose for temporary water services. The water hose shall have a shut-off valve station in the clean room to separate the water supply from the main water source.

3.5. **Temporary Services - Electrical Supply**: An electrical sub-panel, with adequate ground faults, shall be stationed in or immediately adjacent to the clean room of the decontamination chamber. Only a licensed electrician shall be permitted to connect the electrical power source. All wiring shall meet all applicable OSHA and electrical codes, which may apply. The contractor shall obtain all required permits if any, from the local building official to facilitate this.

3.6. **Protection of Property**: The Contractor shall be responsible for insuring that adequate protection for, but not limited to, carpeting, floor tile, hard wood floors, wall coverings, paint, moldings, furniture, etc., is taken. The protective measures shown in the specification (i.e., two (2) layers of poly over non-movable items) are a minimum guideline only. The Contractor should take whatever preventive measures he/she feels are necessary to insure adequate protection is given to all items. The Contractor, in the event damage results from abatement related activities to any of, but not limited to, the items listed above, he/she will be responsible for the repair and/or replacement of said items to the Owner's/Representative's satisfaction at no cost to the Owner/Representative. **In the event damage occurs to asbestos containing materials such as floor tile not included in the scope of work, the contractor shall remove and dispose of the material in accordance with all applicable asbestos regulations to the owner/representative's satisfaction. The contractor shall incur all costs associated with additional ASCM monitoring, project design, and laboratory services, if any.**

3.7. **Work Site Inspection**: The Building Owner/Representative will be permitted to inspect the work site at any time. The Owner/Representative will present appropriate identification to the **Asbestos Safety Technician** on-site for documentation purposes.

3.8. **Smoking**: There will be no cigarette, cigar, pipe, or any other type of smoking permitted inside the building. Anyone caught smoking in any area not designated by the Building Owner will be removed from the site.

3.9. **Excessive Noise/Low Profile**: The Building Owner/Representative does not permit outside Contractors or their employees to create excessive noise, which is not work, related (i.e., playing of radios, tape players, boom boxes, etc.) while on-site. Workers must maintain a low profile while in and around the building and grounds. Workers must wear shirts and appropriate dress at all times while on-site.

3.10. **Digital Manometers**: The contractor shall provide all necessary digital continuous print out manometers as determined by the onsite AST or ASCM representative in good working order for all phases of the project, to include all consumables.

4. Method of Bidding

4.1. Site Investigation: By submitting a bid, the Contractor acknowledges that he has investigated and satisfied himself as to (a) the conditions affecting the work, including, but not limited to, physical conditions of the site which may bear upon site access, handling and storage of tools and materials, access to water, electric or other utilities that otherwise affect performance of required activities; (b) the character and quantity of all surface and sub-surface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner/Representative or a designated consultant, as well as information presented in drawings and specifications included with the contract. Any failure by the Contractor to acquaint himself with available information or taking exact measurements of materials included in the work area will not relieve him from the responsibility of estimating properly the difficulty or cost of successfully performing the work. The Owner/Representative is not responsible for any conclusions or interpretations made by the Contractor on the basis of the information made available by the Owner/Representative.

4.1.1. No bids will be accepted from any Contractor who has not inspected the job site either in person or through a qualified, designated representative, during a pre-bid conference and walk-through or through separate arraignments.

4.2. Discrepancies: Should a bidder find discrepancies in the plans and/or specifications, or should he be in doubt as to the meaning or intent of any part thereof, he must, no later than three (3) working days prior to the bid opening, request clarification from the Owner/Representative. Discrepancies with regard to conflicts between the Contract Documents and applicable federal, state or local regulations or requirements shall be included herein. Failure to request such clarification is a waiver to any claim by the Bidder for expense made necessary by reason of later interpretation of the Contract Documents by the Owner/Representative.

4.2.1. Explanations desired by a prospective bidder regarding the contract drawings, specifications or other bid documents, shall be requested in writing from the Owner/Representative no later than three (3) working days prior to the bid opening. Requests shall include the contract number and name and shall be directed to the Owner/Representative.

4.2.2. Oral explanations or instruction will not be binding. Only written addenda are binding. All addenda resulting from these requests will be mailed to all listed holders of the Bid Document no later than three (3) working days prior to the bid opening. Bidders shall acknowledge the receipt of all addenda.

4.3. Modification and Withdrawal of Bids: Withdrawal or modifications to bids are effective only if written notice thereof is filed prior to the time of the bid opening and at the specified place in the Notice to Bidders. A notice of withdrawal or modifications to a bid must be signed by the Contractor or his designated representative. No withdrawal or modifications shall be accepted after the time for the opening of bids.

5. Insurance Requirements (Also See Spectra Frontend Insurance Requirements)

5.1. Insurance Requirements. The Contractor shall purchase and maintain insurance that will protect him from claims that may arise out of or result from his activities under this Contract, whether those activities are performed by himself or by any Subcontractor or by parties directly or indirectly employed by the Contractor or Subcontractor, or by parties for whose act the Contractor or Subcontractor may be liable. The Contractor shall secure a Certificate of Insurance naming the Owner as an additional insured.

5.2. Bidders shall submit proof of coverage under the Workman's Compensation Insurance system of the State of New Jersey or other similar benefit acts.

5.3. Bidders shall submit and maintain a certificate of insurance, which covers the following:

5.3.1. Commercial General Form
5.3.2. Premises/Operations
5.3.3. Completed Operations
5.3.4. Personal Injury
5.3.5. Contractual
5.3.6. Property Damage
5.3.7. Products
5.3.8. Asbestos Abatement – Pollution Liability
5.3.9. CRDA & SPECTRA Venue Management as required, and EDI as additionally insured.

5.4. Minimum *asbestos liability limits* shall be $5,000,000 each occurrence with an "AM Best" A+ Insurance Carrier, (WHICH MUST BE U.S. BASED), and $5,000,000 aggregate. No sunset clauses will be permitted.

5.5. NOTE: The Owner/Representative will determine the appropriate coverage for specific projects. Insurance policies of this nature routinely explicitly prohibit recovery for incidents involving toxic substances. The Contractor must be able to document that he has notified his insurance carrier of the nature of his work involvement with asbestos and that the coverage in effect specifically includes an endorsement for asbestos abatement activities.

5.6. Should the Bidder, to whom the Contract is awarded, fail or be unable to proceed with the Contract for any reason within five (5) working days after notification of award, the next qualified bidder may be awarded the Contract.

5.7. As a prerequisite to signing the Contract and prior to the expiration of five (5) working days following the notification of award, the Bidder shall have furnished Performance and Payment Bonds and Certificates of Insurance.

6. Licenses and Qualifications

6.1. Bidders must be certified as specified under New Jersey law.

6.2. Bidders must be certified and licensed as required by the State of New Jersey for the purpose of removal, encapsulation, enclosure, demolition and maintenance or structures or components covered by or composed of asbestos-containing materials (ACM).

6.3. Bidders shall demonstrate prior experience on asbestos abatement projects of similar nature and scope through the submission of letters of reference from the Building Manager, including the name, address, and telephone number of contact person (someone specifically familiar with the Contractor's work) for at least five (5) comparable projects. Include descriptions of projects, locations, and records of all air monitoring data that were generated during the project.

6.4. The successful bidder shall submit notarized statements, signed by an officer of the company, containing the following information:

6.4.1. A record of any citations issued by federal, state or local regulatory agencies relating to asbestos abatement activity (include projects, dates and resolutions).

6.4.2. A list of penalties incurred through non-compliance with asbestos abatement project specifications including liquidated damages, over-runs in scheduled time limitations and resolutions.

6.4.3. Situations in which asbestos related contracts have been terminated including projects, dates and reasons for terminations.

6.4.4. A listing of any asbestos related legal proceedings/claims in which the Contractor (or employees scheduled to participate in this project) have participated or are currently involved. Include descriptions of role, issue and resolution to date.

6.4.5. A Disclosure Certificate as required by Chapter 33 of the Public Laws of 1977. Copies of said licenses and qualifications must be on file with the Owner/Representative.

7. Contractor's Services

7.1. The Contractor shall supply all labor, materials, services, insurance, permits and equipment necessary to carry out the work in accordance with all applicable federal, state and local regulations and these specifications.

7.2. The Contractor is responsible for restoring the work area and auxiliary areas utilized during the abatement to conditions equal to or better than the original. Any damaged during the performance of abatement activities shall be repaired by the Contractor (e.g., paint peeled off by barrier tape, nail holes, water damage, broken glass, etc.) at no additional cost to the Owner/Representative unless otherwise specified.

8. Items Included in Bid as Applicable

8.1. Complete work area preparation, as required by federal, state and local law, to include decontamination chambers and HEPA air filtration.

8.2. The encapsulation of all areas that have had asbestos removed.

8.3. The proper disposal of all asbestos containing material (ACM) at an approved landfill.

8.4. Proper cleanup of all applicable areas for re-occupancy by the Owner/Representative.

9. Methods of Payment

9.1. Contract Price: The contract price constitutes the total compensation payable to the Contractor for performing the work in accordance with all applicable federal, state and local laws, this specification, and the pre-bid walk-through, if any. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without change in the contract price. The Contractor is responsible for the field verification of site conditions, material quantities, and limitations placed on the work.

9.1.1. The contract price excludes additional amounts of asbestos containing materials that might be found in, but not limited to, brick set boilers, inside boiler doors, above or behind ceilings, walls, decking, etc., where access was not provided or any item or area where either access to or inspection was not possible during the survey onsite prior to the commencement of the work. This exclusion will also include additional material not shown or specifically requested, on information provided by the Building Owner/Representative to EDI, which may have been utilized to develop this specification. Should additional asbestos containing materials be found which was not included with this project's Scope of Work for any reason, the extra cost to the Owner will be negotiated and approved, in writing, by the Owner/Representative. One hundred percent (100%) of the additional cost will be borne by the Owner.

9.1.2. The contract price may only be changed by a written order from the Owner/Representative.

10. Estimated Magnitude

10.1. Time Change Claim:

10.1.1. The contract time may be changed only by a change order. Any claim for an extension in the contract time shall be based on written notice delivered to the Owner/Representative or Consultant immediately upon occurrence of the event, giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within five (5) working days of such occurrence unless the Consultant allows an additional period of time to ascertain more accurate data. All claims for adjustment in the contract time shall be determined by the Owner/Representative. Any change in the contract time, resulting from any such claim, shall be

incorporated in a change order.

10.2. Extension of Time:

10.2.1. The contract time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor, if he makes a claim and the Owner/Representative accepts it in writing. Such delays shall include, but not be restricted to, acts or neglect by any separate Contractor employed by the Owner/Representative, fires, floods, labor disputes, epidemics, abnormal conditions, or acts of God.

10.3. Adherence to Schedule

10.3.1. All time limits stated in the contract documents or this specification are critical to the Agreement. The provisions of this specification shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

10.3.2. The Contractor is responsible for maintaining an adequate and consistent on-site work crew, which will allow project completion in the allotted time frame. If it becomes necessary to increase the length or number of workdays to complete the project on schedule, the Contractor will be responsible for the reimbursement to the EDI for the increased cost and expenses for laboratory and on-site monitoring services.

10.3.3. EDI and the Building Owner/Representative assume no responsibility for project delays or additional costs which may or may not be incurred by the Contractor from the actions of federal, state or local enforcement agencies and their respective employees in regard to this project. Examples of this are, but are not limited to New Jersey Department of Health final inspections, New Jersey Department of Community Affairs work site inspections, OSHA inspections, delays caused by local building officials, etc.

11. Liquidated Damages

11.1.1. As the damage and loss to the Owner, which will result from a failure by the Contractor to complete the work within the period specified, including any extensions thereof fixed and approved as provided in the Contract, may include the extra cost of the Asbestos Safety Control Monitoring Firm and laboratory services caused by such delay and loss of revenue from the inability of the Owner/Representative to enter into possession, the damage to the facility for delay in cause of such failure on the part of the Contractor shall be charged to the Contractor, not as a penalty but as liquidated damages in the sum set forth in the contract documents for each consecutive calendar day (Sundays and all holidays included) by which such Contractor shall fail to complete his work in accordance with the provisions thereof. Liquidated damages are hereby set at a sum of $1,500.00 per day.

END OF SECTION ONE

Section Two: Description of Work

1. Guidelines

1.1. The Contractor shall follow all guidelines covered within this specification and the accompanying drawings. If there is any discrepancy, he shall immediately bring the discrepancies to the attention of the Consultant. If the solution deviates from the published specification or plan, it shall be put into writing and approved by the Consultant.

2. Legal Compliance

2.1. General Requirements

2.1.1. All work under this contract shall be done in strict accordance with the applicable federal, state and local regulations, this specification, standards and codes governing asbestos abatement plus any other trade work done in conjunction with the abatement. The most recent edition of any relevant regulations, standard documents or codes shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall be applied.

2.1.2. Copies of all standards, regulations, codes and other applicable documents, including this specification and those listed in this section may be made available at the work site in the clean change area of the worker decontamination system upon request..

2.2. Specific References

2.2.1. Occupational Safety and Health Administration (OSHA)

2.2.2. Title 29, Code of Federal Regulations, Section 1926.1101 - Construction Industry Standard for Asbestos.

2.2.3. Title 40, Code of Federal Regulations, Section 763.80.99 - EPA - Regulations on Asbestos-Containing Materials in Schools.

2.2.4. Title 29, Code of Federal Regulations, Section 1910.134 - General Industry Standard for Respiratory Protection.

2.2.5. Title 29, Code of Federal Regulations, Section 1910.20 - Access to Employee Exposure and Medical Records.

2.2.6. Title 29, Code of Federal Regulations, Section 1910-1200 - Hazard Communication Rule.

2.2.7. Environmental Protection Agency (EPA)

2.2.8. Title 40, Code of Federal Regulations, Part 61, Sub-parts A&M (Revised Sub-part B) - National Emission Standard for Hazardous Air Pollutants (Asbestos).

2.2.9. New Jersey Administrative Code 5:23-8 (Subchapter 8).

2.2.10. New Jersey Right to Know Law - N.J.S.A. 35: 5A-1 et. seq.

2.2.11. New Jersey State Fire Code - N.J.A.C. 5:18, 18A and 18B.

2.2.12. New Jersey Administrative Code 7:26-1, et. seq.

2.2.13. New Jersey Administrative Code 8:60, Licenses and Permits.

2.2.14. New Jersey Administrative Code 12:120, Licenses and Permits.

3. Responsibilities

3.1. Responsibilities of the Contractor

3.1.1. The Contractor and the Owner/Representative shall inspect the premises wherein all abatement related activities will occur and submit a signed statement, agreeing on building and fixture condition prior to the commencement of work.

3.1.2. Submit manufacturer's certification that HEPA vacuums, negative pressure ventilation units, and other local exhaust ventilation equipment conform to ANSI Z9-2-70.

3.1.3. If rental equipment is to be used in abatement areas or to transport asbestos contaminated waste, a written notification, concerning intended use of the rental equipment, must be provided to the rental agency with a copy submitted to the Owner/Representative.

3.1.4. Document NIOSH approvals for all respiratory protective devices utilized on-site. Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.

3.1.5. During abatement activity, submit weekly job progress reports detailing abatement activities. Include review of progress with respect to previously established milestones and schedules, major problems and action taken, injury reports, equipment breakdown, and bulk material and OSHA air sampling results.

3.1.6. Submit daily copies of work site entry logbooks with information on worker and visitor access.

3.1.7. Post in the clean room area of the worker decontamination enclosure, a lit containing the names, addresses, and telephone numbers of the Contractor, the Consultant, the Asbestos Safety Technician, the testing laboratory and any other personnel who may be required to assist during abatement activities (e.g., Building Maintenance Supervisor).

3.2. Responsibilities of the Air Monitor

3.2.1. No asbestos hazard abatement work including preparation shall be performed or continued without having a certified Asbestos Safety Technician at the work area.

3.2.2. The Asbestos Safety Technician, as a representative of the Owner/Representative, shall perform all air sampling specified in this specification, and shall be thoroughly familiar with this specification. He shall have access to all areas of the asbestos abatement project at all times and shall continuously inspect and monitor the performance of the Contractor to verify that said performance complies with this specification. The Asbestos Safety Technician (hereinafter titled A.S.T.), shall be on-site from the initial preparation of the work area and through the approved final visual inspection and shall perform all of the required inspections.

3.2.3. The A.S.T. shall direct the actions of the Contractor verbally and in writing to ensure compliance with this specification. The A.S.T. shall require that all workers present a valid asbestos worker performance permit issued by the New Jersey Department of Labor before entering the work area. In matters of negligence and/or flagrant disregard for the safety of any person, including the possibility of contaminating the building environment and the emergence of an unsafe condition at the work area, the asbestos safety technician shall direct such corrective action as may be necessary. If the Contractor fails to take the corrective action, or if the Contractor or any of his or her employees continually violates the requirements of any regulation, then the asbestos safety technician shall order, in writing, that the work be stopped. If the Contractor fails to comply with the order, the A.S.T. shall notify the enforcing agency, who shall issue a Stop Work Order to the Contractor and have the work area secured until all violations are abated.

3.2.4. The A.S.T. shall calculate, based on the actual available output (not the rated output) of the air filtering units, the required number of air filtration units for each work area. This calculation shall be made whenever the volume of the work area changes. The A.S.T. shall inform the Owner, Contractor, and the abatement project designer of any discrepancies between the number of units required and those in operation within the work area. If problems are identified and not corrected, the A.S.T. shall inform the enforcing agent who shall take necessary measures to ensure corrective action;

3.2.5. At the beginning of each work shift, every four hours thereafter, and at the end of the

Contractor's work day, the A.S.T. shall monitor pressure differential by digital manometers with continuous printout low pressure monitoring devices for each work area **supplied by the Contractor.** One or more separate monitoring systems shall be installed for every ten-thousand (10,000) square feet of separation surface adjacent to the work area. Pressure monitoring shall be representative of all adjacent areas. The pressure differential shall meet the minimum requirement set forth in N.J.A.C. 5:23-8.15(b)9 or 8.17(d)6i or 8.19(c)4ii as appropriate.

3.2.6. In unoccupied buildings, if the pressure differential drops below 0.01 inches w.c., the A.S.T. and the Contractor supervisor shall investigate and evaluate the engineering controls to determine the source of the pressure loss and the Contractor shall institute corrective action as indicated.

3.2.7. In occupied buildings, the procedures set forth in N.J.A.C. 523-8/19 shall be followed.

3.2.8. The A.S.T. upon receipt of testing results indicating that concentrations above 0.02 fibers per cubic centimeter (f/cc) within the clean room of the decontamination chamber or above 0.01 f/cc outside of the containment barriers during the abatement, the A.S.T. shall immediately direct corrective action and verbally report these results within twenty-four (24) hours to the Contractor, the Owner and the abatement project designer. Such verbal notification shall be followed by written notification to the Contractor, the Owner and the abatement project designer. A copy shall be sent to the enforcing agency and the Department of Community Affairs (DCA) within three (3) business days from receipt of the results.

3.2.9. The A.S.T. shall monitor the removal of all asbestos-contaminated waste from the work area to ensure that it takes place in conformance with N.J.A.C. 5:23-8.22, in the following manner:

3.2.9.1. Direct removal by a collector/hauler registered with the New Jersey Department of Environmental Protection and Energy pursuant to N.J.A.C. 7:26 and pursuant to New Jersey Department of Transportation rules at N.J.A.C. 16:49.

3.2.9.2. Indirect removal by placement in a locked and secure container, for temporary storage, awaiting the New Jersey Department of Environmental Protection and Energy registered waste hauler.

3.2.10. The A.S.T. shall keep an up-to-date and comprehensive daily log of on-site activities. The log shall be updated continuously. The name of the project, name of the A.S.T., and date shall be recorded daily. Each entry shall contain the event, the time of event and shall be initialed by the A.S.T. One section of the log shall contain observations concerning Contractor compliance with activities required under this specification listing all deficiencies encountered. In addition, the log shall list the name of each person entering the work area. The log shall be kept at the project site and shall be made available upon request at all times to the Owner, the abatement project designer and to appropriate local and State agencies.

3.2.11. Upon completion of an asbestos hazard abatement project, the A.S.T. shall submit a final comprehensive report consisting of, but not limited to plan release, permit application and permit issued by the enforcing agency, variations submitted, written notice to proceed, written notice to remove barriers, certificate of completion and violation notices, daily logs, inspection records, observations, calculations, backup records, air monitoring results and a separate listing of any Contractor deficiencies observed during the course of the work. The report shall be submitted within sixty (60) days of issuance of the Certificate of Completion. Copies of the final report shall be submitted to the Building Owner and the department within ten (10) days following a written request.

3.2.12. During the project, air monitoring by the A.S.T. shall be as follows:

3.2.12.1. Monitoring outside the work area shall be provided throughout removal operations to ensure that no outside contamination is occurring.

3.2.12.2. Filter cassettes and sampling protocol shall be assembled as specified in NIOSH 7400. The flow rate shall be between 1.5 and 15 liters per minute. The total volume shall be a volume sufficient to achieve a detection limit of 0.005 f/cc. Pumps shall be calibrated before and after sampling and a record kept of this calibration.

3.2.12.3. A minimum of three (3) samples per eight hour shift shall be collected, one at the beginning of each shift, one every four hours thereafter, and one at the end of the Contractor's work day. One (1) stationary sample shall be collected within the clean room of the decontamination unit and two (2) samples collected adjacent to the work area but remote from the decontamination unit entrance. In the selection of adjacent areas to be monitored, preference shall be given to rooms adjacent to critical barriers and/or work area. Testing results shall not indicate that concentrations above 0.01 fibers per cubic centimeter have occurred outside the containment barrier or above 0.02 fibers per cubic centimeter within the clean room of the decontamination chamber during the abatement project.

3.2.13. Post abatement visual inspections and air monitoring shall comply with the

following procedures:

3.2.13.1. Within forty-eight (48) after clean-up for post removal air testing, and before the removal of critical barriers, a thorough and complete visual inspection and a subsequent final air test shall be performed. This test is required to establish safe conditions for the removal of critical barriers and to permit the beginning of reconstruction activity, if required. Sufficient time following clean-up activities shall be allowed so that all surfaces shall be dry during monitoring. Air pressure differential filtration units shall be in use during this monitoring. Post removal testing shall begin when all work area surfaces are completely dry.

3.2.13.2. Aggressive air sampling shall be employed using propeller-type fans and leaf blowers as follows:

3.2.13.3. The fans shall be placed in each room to be sampled so as to cause settled fibers to rise and enter the air.

3.2.13.4. Prior to air monitoring, floors, ceilings, and walls shall be swept with the exhaust of a one-horsepower leaf blower. The areas, which would be subject to dead-air conditions, shall be swept clean.

3.2.13.5. The fans used shall be capable of creating a minimum air velocity of five-hundred (500) feet per minute. These fans may be of the oscillating type.

3.2.13.6. The sampling pump and sampling media shall be placed in the abatement area on a random basis to provide unbiased and representative samples. Stationary fans shall be placed in locations which will not interfere with air monitoring equipment. Fan air shall be directed toward the ceiling.

3.2.13.7. One fan shall be used for each ten-thousand (10,000) cubic feet of the work area.

3.2.13.8. The leaf blower and its use must meet the criteria set forth in EPA document 560/5-85-024, "Guidance for Controlling Asbestos-Containing Materials in Buildings," appendix section M.1.5., or any replacement criteria set forth by the EPA. Their use should be restricted to general occupancy areas that are contained, and they should not be used in any space with an open dirt, sand or gravel floor.

3.2.13.9. The work site shall be kept free of non-asbestos abatement debris that would render aggressive air sampling impractical.

3.2.13.10. Post abatement sampling and analysis for an asbestos hazard abatement project shall be performed as per EPA 40 CFR 763.90i. Samples collected within the affected work area shall be analyzed by TEM.

3.2.13.11. Post abatement sampling and analysis for an asbestos hazard abatement

project utilizing the glovebag technique and encapsulation shall be as follows:

3.2.13.12. One sample per ten-thousand (10,000) square feet of work area with a minimum of five (5) samples shall be required. Samples collected within the affected work area may be analyzed by PCM to confirm completion of an asbestos abatement project using the methodology specified in NIOSH 7400.

3.2.13.13. For TEM analysis, the project shall be considered complete when the results of samples collected in the affected work area comply with 40 CFR 763.90 and Appendix A to Subpart E. Maximum turnaround time from sample collection through data reporting shall be seventy-two (72) hours.

3.2.13.14. For PCM analysis, the project shall be considered complete when the results of samples collected in the affected work area show that the concentration of fibers for each of the five (5) samples is less than or equal of 0.01 fibers per cubic centimeter.

3.2.14. When the air analysis results for projects covered by this specification show asbestos fiber concentrations above the acceptance criteria, then clean-up shall be repeated until compliance is achieved by re-cleaning all surfaces using wet methods and operating all HEPA equipped air pressure differential units to filter the air.

3.3. Responsibilities of the Owner's/Representative's (Abatement in Occupied Buildings)

3.3.1. The Building Owner shall notify building occupants in writing twenty (20) days prior to the commencement of an asbestos abatement project. The Building Owner shall outline in writing any procedures and/or precautions that are deemed necessary in order to protect the health, safety and welfare of the occupants. This notification shall include, but not be limited to: relocation plans, if any; entrances and exits that may be temporarily be blocked ad alternate routes to be used; the name and telephone number of the Owner's Representative for the occupant to call in case of an emergency or to answer any questions with regard to the project. This notification shall accompany the application for a construction permit for asbestos abatement and shall be filed with the enforcing agency.

3.3.2. This notification shall be posted seven (7) days prior to the preparation of the work area, in visible locations, for the benefit of the affected occupants of the work place, and in areas immediately adjacent to the asbestos abatement project. It shall be the Owner's responsibility to ensure that these postings are maintained throughout the project.

3.3.3. When circumstances require immediate removal of asbestos-containing material,

notification shall be provided to the building occupants as soon as possible.

3.3.4. Nothing in this section shall be interpreted as prohibiting the Building Owner from providing additional notification.

4. Protection of Workers

4.1. Contractor's Responsibility

4.1.1. Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter the work area. This fit-testing shall be in accordance with qualitative procedures, as detailed in the OSHA Lead Standard 29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocol, or be quantitative in nature.

4.1.2. Familiarize all workers with emergency procedures and escape procedures.

5. Monitoring

5.1. Air testing (with the exception of OSHA monitoring) shall be performed by EDI payment to the testing laboratory shall be by the Owner/Representative. Any testing required by the Contractor, in addition to that listed below, shall be paid for by the Contractor. The final contract amount shall be reduced by any additional testing costs incurred by the Contractor.

5.2. Throughout the entire removal and cleaning operations, air monitoring shall be conducted to ensure that the Contractor is complying with EPA and OSHA regulations, and applicable state and local government regulations.

5.3. Air monitoring and sample numbers required will be conducted according to the method prescribed by Subchapter 8, N.J.A.C. 5:23-8 and AHERA protocol, if applicable.

5.4. Monitoring prior to the commencement of work in the proposed work area may be accomplished at the discretion of EDI to establish a baseline fiber level in the area.

5.5. For Transmission Electron Microscopy (TEM) analysis, laboratories shall participate in the National Institute of Standards and Technology-National Voluntary Laboratory Accreditation Program (NIST-NVLAP) and shall certify that the analysis they performed was according to the protocol listed in Appendix A to Subpart E of 40 CFR 763. Maximum turnaround time from sample collection through data reporting shall be seventy-two (72) hours.

5.6. Analysis by PCM shall use the NIOSH 7400 method delineated in "Fibers" publication in the NIOSH Manual of Analytical Methods, third edition, second supplement, August 1987 or the latest edition. Maximum turnaround time from sample collection through data reporting shall be twenty-four (24) hours.

END OF SECTION TWO

Section Three: Quality Assurance Guidelines

1. Quality Assurance

1.1. Contractor Responsibility

1.1.1. In procuring all materials and equipment used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for used in this work meet or exceed the specified requirements, and are suitable for their intended use.

1.2. Owner's Right of Rejection

1.2.1. The Owner/Representative reserves the right to reject any materials or equipment incorporated into the work which fails to meet the specified minimum requirements.

1.3. Applicable Standards

1.3.1. Applicable standards listed in these specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1.3.1.1. EPA - Environmental Protection Agency Region II, 26 Federal Plaza, New York, New York, 10007, Asbestos Coordinator - Room 802, (212) 264-7307, Part 61, Sub-parts A and B - National Emissions Standards for Asbestos.

1.3.1.2. OSHA - Occupational Safety and Health Administration, New York Regional Office, 1515 Broadway, Room 3445, New York, New York, 10036, (212) 944-3426, Paragraph - Asbestos.

1.3.1.3. NEC - National Electric Code (See NFPA).

1.3.1.4. NFPA - National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts, 02201.

1.3.1.5. FEDERAL SPECS. - Specification Sales (3F21), Building 197, Washington Navy Yard, GS Washington, DC, 20407.

1.3.1.6. ANSI - American National Standards Institute (Successor to USASI and ASA), 1430 Broadway, New York, New York, 10018.

1.3.1.7. NJDOH - New Jersey Department of Health Asbestos Control Project Environmental Health Program, CN 360, Trenton, New Jersey, 08625-0360.

1.3.1.8. NJDCA - New Jersey Department of Community Affairs, Bureau of Construction Code Enforcement, CN 805, Trenton, New Jersey, 08625-0805.

1.3.1.9. NJDOL - New Jersey Department of Labor, Office of Asbestos Control and Licensing, CN 054, Trenton, New Jersey, 08625-0054.

1.3.1.10. USEPA - U.S. Environmental Protection Agency, Asbestos NESHAPS Contract Air and Waste Management Division, USEPA, 26 Federal Plaza, New York, New York, 10007.

1.4. Laboratory Services

1.4.1. Codes and Standards

1.4.1.1. EDI's laboratory shall be responsible for the quality assurance of the project.

1.4.1.2. Air sampling shall be in accordance with USDOL/OSHA (29 CFR 1926.58).

1.4.1.3. Laboratory analysis shall be in accordance with NIOSH Method 7402, and/or 7400, and AHERA (40 CFR 763, Subpart E, Appendix A).

1.4.2. Submittals

1.4.2.1. Promptly process and distribute one (1) copy to the Owner/Representative and one (1) copy to the Contractor.

1.4.2.2. Prompt reporting is necessary so that modifications to work methods and/or engineering controls will be implemented as soon as possible.

1.4.2.3. EDI shall verbally notify all concerned parties within twenty-four (24) hours of the results of each test, followed by written notification within three (3) days.

1.4.3. Post-Abatement Air Samples

1.4.3.1. Post-abatement air sampling shall not be done until written notice from the Contractor is received stating he is ready for the post-abatement sample to be taken.

1.4.3.2. Should post-abatement air sampling results include a fiber count greater than all applicable standards in the work area, the Contractor shall re-clean the work area and re-sampling shall be performed. **All costs of the additional samples will be at the Contractor's expense unless otherwise specified in writing and agreed upon in advance.**

2. Site Security

2.1. Physical Isolation

2.1.1. The area of asbestos removal shall be totally isolated from portions of the building not involved in the work.

2.1.2. The Owner shall be responsible for removing all portable, personal and sensitive items from the work area as deemed necessary. The Contractor shall not move any items from any location without written permission from the Owner/Representative.

2.2. Posting

2.2.1. The Contractor shall post caution warning signs meeting the requirements of OSHA 29 CFR 1926.58 (g)(i)(ii) at all entrances to the work area and at a sufficient distance from the work area to permit an individual to read the sign and take necessary protective measures to avoid exposure. Additional signs may be necessary following construction of work place barriers.

2.2.2. The Contractor shall provide and post in clearly visible locations, appropriate caution and/or danger signs indicating that asbestos work is being conducted and that unprotected persons should not enter.

2.3. Personnel

2.3.1. All workers and authorized personnel shall enter and exit the work area through the worker three (3) stage decontamination chamber.

2.3.2. All personnel who enter the work area must sign the entry log, located in the clean room, upon entry and exit.

2.3.3. All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements (including work place entry and exit procedures), and emergency procedures.

2.3.4. All personnel shall proceed first to the clean room, remove all street clothes and don the appropriate respiratory equipment (as deemed adequate for the job conditions) and disposable coveralls, with head and foot covering. Hard hats, eye protection and gloves, shall also be utilized, if required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.

2.3.5. Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the main work area.

2.3.6. Before exiting the work area, all personnel shall remove gross contamination from the outside of the respirators and protective clothing by brushing and/or wet wiping procedures. Small HEPA vacuums with brush attachments may be utilized for this purpose; larger machines may tear the suits.

2.3.7. Personnel shall proceed to the equipment room where they shall remove all protective equipment except respirators. Deposit disposable clothing into appropriately labeled containers for disposal.

2.3.8. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. Rubber boots may be decontaminated at the completion of the abatement for re-use.

2.3.9. Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and their exposed face areas under running water prior to removal of respirator; personnel will then shower with soap to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures. An air-line respirator with HEPA filter protection may be disconnected in the equipment room and worn into the shower. A powered air purifying respirator face-piece will have to be disconnected from the filter/power-pack assembly, which is not waterproof, upon entering the shower. A dual cartridge respirator may be worn into the shower. Cartridges must be replaced for each new entry into the work area.

2.3.10. After showering and drying, personnel will proceed to the clean room and don clean disposable (and/or launderable) clothing if there will be later re-entry into the work area or street clothes if it is the end of the work shift.

2.3.11. These procedures shall be posted in the clean room and equipment room.

3. Emergency Planning

3.1. Emergency planning shall be developed and initiated prior to abatement activities, and all parties involved will be informed.

3.2. Emergency procedures shall be in written form and prominently posted in the clean change room and equipment room of the worker decontamination area. Everyone prior to entering the work area must read and sign the procedures to acknowledge receipt and understanding of the work site layout, location of emergency exits and emergency procedures.

3.3. Emergency planning shall include written notification of police, fire and emergency medical personnel, concerning planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities.

3.4. Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, confined spaces and heat related injury. Written procedures shall be developed and employee training in these procedures shall be provided.

3.5. Employees shall be trained in evacuation procedures in the event of work place emergencies:

3.5.1. For non-life threatening situations, employees injured or otherwise incapacitated, shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.

3.5.2. For life-threatening injury or illness, worker decontamination shall take priority only after measures to stabilize the injured worker, remove him from the work place, and secure proper medical treatment.

3.5.3. Telephone numbers of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the location of the nearest telephone.

END OF SECTION THREE

Section Four: Materials and Equipment

1. Materials and Equipment

1.1. General

1.1.1. Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name (where applicable).

1.1.2. Store all materials subject to damage, off the ground, away from wet or damp surfaces and under cover, sufficient to prevent damage or contamination. Replacement materials shall be stored outside of the work area until abatement is completed.

1.1.3. Damaged, deteriorating or previously used materials shall not be used and shall be removed from the work site and disposed of properly.

1.1.4. Polyethylene sheeting for stationary objects shall be a minimum of two (2) layers of six (6) mil poly sheeting. All floors shall be covered with two (2), six (6) mil layers and shall be used in widths selected to minimize the frequency of joints. Walls shall be covered with one (1) layer of six (6) mil poly.

1.1.5. Method of attaching polyethylene sheeting shall be agreed upon in advance by the Contractor and Consultant or his designated representative and selected to minimize damage to equipment and surfaces. Method of attachment may include any combination of duct tape or other waterproof tape, furring strips, spray glue, staples, nails, screws or other effective procedures capable of sealing adjacent sheets of polyethylene under both wet and dry conditions (including the use of amended water).

1.1.6. Polyethylene sheeting utilized for worker decontamination enclosure shall be opaque, white or black in color.

1.1.7. Special materials required to protect objects in the work area should be detailed (e.g., plywood over carpeting or hardwood floors to prevent damage from scaffolds and falling material).

1.1.7.1. Disposal bags shall be of six (6) mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.512 (b)(i)(iv) or OSHA requirement 28 CFR 1910.1001 (g)(2)(ii).

1.1.8. Disposal drums shall be metal or fiberboard with locking ring tops.

1.1.9. Stick-on labels, as per EPA or OSHA requirements (see 2.1, 2.7) for disposal drums.

1.1.10. Warning signs, as required by OSHA 29 CFR 1926.58 K (1) (ii).

1.2. Removal

1.2.1. Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a concentration of one (1) fluid ounce to five (5) gallons of water or as specified by manufacturer. (An equivalent surfactant shall be understood to be a material with a surface tension of 29 dynes/cm as tested in its properly mixed concentration, using ASTM method D1331-565 - "Surfaces and Inter-facial Tension of Solutions of Surface Active Agents"). Where work area temperature may cause freezing of the amended water solution, the addition of ethylene glycol in amounts sufficient to prevent freezing is permitted.

1.3. Sealants

1.3.1. Any sealant used must be approved by the United States Environmental Protection Agency, Office of Toxic Substances and the American Society of Testing and Materials (ASTM) Committee, E06.21,06E on Encapsulation of Building Materials.

1.4. Substitutions

1.4.1. Approval Required

1.4.1.1. The contract is based on the materials, equipment and method. The Owner/Representative will consider proposals for substitutions of materials, equipment or methods, only when such proposals are accompanied by full and complete technical data and all other information required by the Owner/Representative to evaluate the proposed substitution. The substitution of materials, equipment or methods will not be tolerated unless the substitution has been specifically approved by the Owner/Representative.

1.4.2. "Or Equal"

1.4.2.1. Where the phrase "or equal" or "or equal as approved by the Owner/Representative" occurs in the contract document, the Contractor shall not assume that materials, equipment or methods will be approved by the Owner/Representative unless the item has been specifically approved for this work by the Owner/Representative; their decision shall be final.

1.4.3. Availability of Specified Items

1.4.3.1. Verify prior to bidding, that all specified items will be available in time for installation during orderly and timely progress of the work.

1.4.3.2. In the event that specified items will not be available, notify the

Owner/Representative prior to receipt of bids.

1.4.3.3. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back-charged as necessary and shall not be borne by the Owner.

2. Materials

2.1. Polyethylene

2.1.1. All plastic sheeting shall be six nominal (6) mil thick and of sufficient size to enclose the area with a minimum number of seams.

2.2. Barrier Securing Materials

2.2.1. All tape shall be a high quality duct tape. All spray-on adhesive, glue and other barriers or securing material shall also be high quality products.

2.3. Lumber

2.3.1. Lumber utilized for construction on the work site shall be selected by the Contractor; however, all materials will be of appropriate size to provide safety to all personnel and free of all contaminants.

2.4. Hand Tools

2.4.1. All hand tools shall be furnished by the Contractor and shall be properly used by all personnel.

2.5. Glovebags

2.5.1. Only glovebags specifically designed and approved for use in New Jersey asbestos removal projects shall be used.

2.6. Waste Bags

2.6.1. All waste bags shall be six (6) mil thick, properly labeled, and meet all applicable standards.

2.7. Fiber or Metal Container Drums

2.7.1. All fiber or metal container drums shall be thirty (30) gallon capacity and meet all applicable standards.

2.8. Sprayers and Pumps

2.8.1. Sprayers with pumps capable of providing five hundred (500) pounds per square inch (psi) at the nozzle tip at a flow rate of two (2) gallons per minute, shall be used for spraying amended water.

2.9. Squeegees and Dustpans

2.9.1. The Contractor shall provide rubber dustpans and squeegees for cleanup.

2.10. Brushes

2.10.1. Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.

3. Equipment

3.1. HEPA Air Filtration

3.1.1. The Contractor shall have available HEPA filtering equipped air filtering equipment capable of filtering asbestos fibers to 0.3 µm at least 99.97 percent efficiency and of sufficient quantity and capacity to cause a complete air change or total filtration within the work area at least once every fifteen (15) minutes. Nothing in this specification shall be constructed to limit the maximum exhaust capacity from the work area. The exhaust capacity from the work area shall be sufficient to establish a pressure differential between the work area and all adjacent spaces greater than or equal to 0.03 inches w.c. for unoccupied buildings and greater than or equal to 0.05 inches w.c. for occupied buildings.

3.1.2. Pressure differential shall be monitored by digital manometers with continuous printout low pressure monitoring devices provided by the Contractor. The A.S.T. shall zero and level the gauges each time a reading is taken.

3.1.3. One or more separate pressure monitoring systems shall be installed by the Contractor and checked by the Asbestos Safety Control Monitor (A.S.C.M.) near the entrance(s) to the work area and between the work area and any interior spaces from which make-up air is drawn.

3.2. Respiratory System

3.2.1. All workers, foremen, superintendents, authorized visitors and inspectors, shall be issued respiratory equipment (including Type C), approved by NIOSH and OSHA. When respirators with disposable filters are employed, a sufficient number of filters for replacement shall be provided by the Contractor. Replacement filters will be stored on-site.

3.2.2. The Contractor shall require that each person entering the work area wear an

approved respirator and protective clothing. There shall be no exception to this rule.

3.2.3. Respiratory protection shall be in accordance with OSHA regulation 1926.58, OSHA Regulation 1910.134, and ANSI Z88, 2-1980. Respirators chosen shall also be approved by NIOSH under the provisions of 30 CFR Part II.

3.2.4. At a minimum, respiratory protection shall be:

3.2.4.1. 0.01 - 1/0 f/cc: Class A, Dual Cartridge, Air Purifying Respirator with HEPA Cartridge.

3.2.4.2. 1.0 - 10 f/cc: Class C Supplied Air Line Constant Flow Respirator

3.2.5. Contractor shall utilize Class C, Supplied Air Line Respiratory equipment, including full face masks with constant flow/pressure demand regulators; including compressor, air filtering systems for carbon monoxide and water vapor, an audible and visual alarm, all required hoses, manifolds, connectors and regulators. Type C systems shall include an escape bottle with a full five (5) minutes of compressed breathing air. The Contractor shall be responsible for the quality of supplied air.

3.2.6. NO ONE is permitted into the work area without proper protection. Class C respirators are MANDATORY at the beginning of removal work requiring total isolation until airborne concentrations are established. The Contractor may provide documentation regarding fiber concentrations on similar abatement projects removing like materials, to preclude the use of Class C respirators.

3.2.7. AT NO TIME during actual operations, shall Class A respirators be allowed, unless a full eight (8) hour TWA and ceiling concentration has been conducted, and reviewed by the Consultant. During repair and encapsulation or work considered to be emergency in nature, Class A respirators may be utilized.

3.2.8. AT NO TIME in the project shall disposable dust masks be allowed.

3.2.9. All personnel engaged in asbestos removal procedures requiring a respirator shall have an unobstructed face mask seal.

3.3. Personal Protective Equipment (PPE)

3.3.1. Provide to all workers, foremen, superintendents and authorized visitors and inspectors (to include the A.S.T.), protective disposable clothing consisting of full body coveralls, head coverings, gloves and foot coverings or reusable footwear.

3.3.2. Provide eye protection and hard hats as required by job conditions and safety

regulations.

3.3.3. Reusable footwear, hard hats and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work at which time they will be thoroughly decontaminated.

3.3.4. Disposable protective clothing shall be discarded and disposed of as asbestos waste, every time the wearer exits from the work space through the decontamination facility.

3.4. Scaffolds/Ladders

3.4.1. The Contractor shall have available adequate ladders and/or scaffolds and sufficient temporary lighting equipped with ground fault circuit interrupters for the A.S.T. and all others that may inspect the work.

3.5. Showers/Decontamination Systems

3.5.1. The Contractor shall have available shower stall(s) and sufficient plumbing for these showers including hot and cold running water and sufficient hose length drain systems or an acceptable alternate such as a portable decontamination trailer with showers. Waste shower water shall be added to asbestos-contaminated waste material before disposal in a permitted asbestos waste landfill or it shall be solidified using an approved polymer to prevent leaks or accidental spills within a facility of during transport for disposal to a permitted asbestos waste landfill or it shall be filtered using a five (5) µm filter and disposed of in the sanitary drain, if allowed by local treatment works by regulation or as allowed by permit.

END OF SECTION FOUR

Section Five: Execution

1. Preparation – General

1.1. Prior to Project Beginning

1.1.1. The Contractor shall notify all necessary agencies prior to the abatement project beginning and shall obtain and pay for all necessary permits prior to any work beginning, unless otherwise specified.

1.2. Coordination with Building Supervision

1.2.1. Before commencement of work, the Contractor shall designate one (1) individual as the Project Superintendent. This Superintendent shall be responsible for communication with the Owner/Representative and its representative during the entire project.

1.2.2. The Project Superintendent will inform, in writing to the Owner/Representative and EDI, any variations to the specification he plans on making and will wait for permission from the Owner/Representative before proceeding.

1.3. Provide Temporary Services

1.3.1. Existing electrical power and lights outside of the proposed work area may be used during the abatement process.

1.3.2. If electrical power from another area will be used, the Contractor shall verify the location of available electrical service outside of the work area and shall tie into the existing system at a location acceptable to the Owner/Representative, utilizing only

licensed electricians. All electrical service to the work area shall be protected by ground fault insulation.

1.3.3. The service cost of electrical power used from existing facilities will be paid by the Owner. The cost of tying into the service is the responsibility of the Contractor.

1.3.4. All extension cords will be of the construction type with Ground Fault Interrupter devices.

1.3.5. Artificial lighting will be provided in a sufficient amount to adequately illuminate the entire work area to provide safe working conditions throughout the course of the project.

1.3.6. Existing domestic water service to the building may be used for temporary water

during the abatement. The location of tying into the existing system shall be coordinated with and be acceptable to the Owner/Representative.

1.3.7. The Contractor is responsible for providing adequate hot water to the decontamination chamber at all times.

1.3.8. The Owner will pay service costs for water used from existing facilities.

1.3.9. The Contractor shall repair any damages made to the existing water lines if damage is incurred during work.

1.3.10. Existing toilet facilities in the work area may not be used by the Contractor's personnel during performance of the work.

1.3.11. The Contractor shall provide such temporary chemical toilets outside of the work areas, as necessary for use by the Contractor's personnel. Location of toilets shall be acceptable to EDI and the Owner.

1.3.12. Maintain toilet facilities in a clean and sanitary condition in compliance with applicable codes and ordinances.

1.4. HVAC Exhaust and Intake Security

1.4.1. All heating, cooling and air conditioning system (HVAC) components that supply or pass through the work area shall be shut down, locked out, and tagged.

1.4.2. If interiors of duct work need cleaning, this shall be done during the pre-cleaning phase of operations before the duct work is sealed off.

1.4.3. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces during this operation.

1.4.4. NOTE: Adequate cleaning of duct work may sometimes be accomplished by drawing high volumes of air through the system using the HEPA equipped air filtration device.

1.5. Post Warning Signs

1.5.1. The Contractor shall post caution signs meeting the specifications of OSHA 29 CFR 1926.58 (g)(1)(ii) at each location where the level of asbestos fibers may exceed the Permissible Exposure Limit (PEL).

1.5.2. The Contractor shall provide and post in clearly visible locations, appropriate caution and/or danger signs indicating that asbestos work is being conducted and that unprotected persons should not enter. Signs shall be a minimum of 8½" x 11" in size.

1.5.3. The signs shall be posted at such a distance from such a location so that an employee

may read the signs and take necessary protective steps before entering the area marked by the signs.

1.5.4. All entries and exits to the work area shall be clearly marked to permit easy location from anywhere within the work area.

2. Preparation – Full Scale Containment

2.1. Initial activity in the work area shall be conducted in the following order:

2.1.1. Remove filters from all heating, ventilating, and air conditioning systems. Wet the filters and place them in polyethylene bags, double bagged with visible labels, for disposal as asbestos-containing waste. Squeeze all excess air out of the bag before sealing to prevent puncture during disposal. Secure bags by twisting, taping, folding over, and sealing them with duct tape.

2.1.2. The Contractor shall wet clean and/or HEPA vacuum all non-removable non-asbestos items such as radiators and suspended light fixtures in the work area, including built in equipment; and shall cover with two (2) layers of six (6) mil polyethylene sheeting taped securely in place.

2.1.3. The Contractor shall detach and wet clean removable electrical, heating, and ventilating equipment and other items, which may be connected to the asbestos surfaces. These items shall be removed from the work area and returned and reattached to their proper place when the work area has been decontaminated and final air testing has provided satisfactory results.

2.1.4. The Contractor shall seal all floor, wall, and ceiling penetrations with suitable material such as expanding foam insulation before covering the surfaces with polyethylene sheeting. The Contractor then shall seal all openings between the work area and uncontaminated areas including but not limited to, windows, doorways,

elevator openings, skylights, corridor entrances, floor and sink drains, air ducts, gills, grates and diffusers with critical barriers consisting of two (2) layers of six (6) mil polyethylene sheeting taped securely in place or stapled or fastened by spray-on adhesives, glue beads, or horizontal wood battens or the equivalent. Floor drains shall be sealed individually and then covered as all other floor surfaces with two (2) layers of six (6) mil polyethylene sheeting. Separation barriers may be constructed to support the critical barriers. Separation barriers shall not block any required means of egress.

2.1.5. For floor covering two (2) layers of six (6) mil polyethylene sheeting shall be used. The first layer of floor sheeting shall extend up the wall at least twelve (12) inches. The second layer shall be extended up (side) walls at least twenty-four (24) inches. Sheeting shall be sized so as to minimize the number of seams necessary. No seams shall be located at the joints between walls and floors.

2.1.6. Wall sheeting shall consist of one (1) layer of six (6) mil polyethylene sheeting. It

shall be installed to minimize joints and shall overlap floor sheeting by at least eighteen (18) inches. No seams shall be located at the corners. Wall coverings shall be taped first to the upper most edge of the wall and shall hang straight down.

2.1.7. When a strippable coating is authorized in place of polyethylene sheeting, it must be manufactured for the specific application required for walls, floors, or windows.

2.1.8. When dry, the strippable coating must have a Class A rating as a building material and must meet the following requirements when tested in accordance with ASTM E-84: flame spread no greater than twenty (20), fuel contributed zero (0), and smoke developed no more than one-hundred and ten (110).

2.1.9. The strippable coating shall be applied uniformly in such a manner as to achieve a minimum uniform final thickness of six (6) mil for each layer required pursuant to this subchapter.

2.1.10. Manufacturer's specifications shall be followed for the method of application and for the protection of the applicators and building occupants.

2.1.11. Use of the product shall be authorized in advance. The material shall be delivered to the project site in unopened, factory-labeled containers.

2.1.12. As all existing ventilating systems in work area are to be sealed throughout the removal operation, an alternative system shall be utilized. Install approved HEPA equipped air filtration units with filters in place. HEPA equipped air filtration units shall be of sufficient number and capacity to ensure that total air volume is exchanged at least once every fifteen (15) minutes and an acceptable pressure differential is established and maintained. These units shall be rated by the manufacturer as to their actual working air capacity and field tested pursuant to N.J.A.C. 5:23-8.10(d)4.

2.2. Decontamination Chamber Construction

2.2.1. The Contractor shall provide an adequate decontamination unit at the entrance to the work area consisting of a serial arrangement of rooms or spaces adjoining the work area separated from the other by plastic crossover sheet doors designed to minimize fiber and air transfer as people pass between areas. A minimum of two (2) layers of six (6) mil plastic sheeting shall be required for floors, walls, and the ceiling for on-site constructed decontamination units. Plastic crossover sheet doors shall have at least three (3) layers of six (6) mil plastic sheeting and be weighted so as to fall into place when people pass through the area. Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment that may fail and to safely stretcher or carry an injured worker from the site without destruction of the chamber or unnecessary risk to the integrity of the work area. Such doors must be at least four (4) feet wide, and the distance between sets of flaps must be at least four (4) feet.

2.3. The decontamination chambers shall consist of the following:

2.3.1. Clean Room. In this room persons remove and leave all street clothes and put on clean disposable coveralls. Approved respiratory protection equipment is also picked up in this area. No asbestos contaminated items are permitted in this room.

2.3.2. Shower Room. This is a separate room used for transit by cleanly dressed people entering the work area from the clean room and for showering by them after they have undressed in the equipment room. This is a contaminated area.

2.3.3. Equipment Room. Work equipment, footwear, and all other contaminated work clothing shall be stored here. This is also a change and transit room for people. All areas between the shower room and work area shall be considered part of the equipment room. This is a contaminated area.

2.4. Installation of HEPA Air Filtration

2.4.1. The Contractor shall ensure that an adequate power supply is available to satisfy the requirements of the HEPA air filtration units.

2.4.2. The A.S.T. will calculate the number of HEPA air filtration units required to provide a minimum of four (4) air changes per hour in the work area.

2.4.3. HEPA air filtration units shall be exhausted to the outside of the building, unless otherwise specified. They shall not be exhausted into occupied areas of the building unless no other alternative is possible, and approved by the authority having jurisdiction. Twelve inch (12") extension ducting shall be used to reach from the work area to the outside when required.

2.4.4. Duct work, which is utilized for air exchanges inside of abatement containment's, will be exhausted outside of the building. The Contractor is responsible for the removal and replacement of all windows, vents, etc., utilized for air filtration and any and all costs which may be incurred.

3. Preparation – Mini-Containment

3.1. In order to reduce the size of the containment area, if specified, or in conjunction with a glovebag removal, a mini-containment will be built around the work area. This will be done, for example, when the removal of asbestos is from a small ventilation system or from a short length of duct in which a glovebag is either not large enough or not of the proper shape to enclose the work area. Such enclosures shall be constructed of a minimum of two (2) layers of six (6) mil polyethylene plastic sheeting and shall be small enough to restrict entry into the asbestos work area to one (1) or two (2) workers. The mini-containment shall be constructed using the following steps:

3.1.1. Affixing plastic sheeting to the walls with spray adhesive and/or high quality duct

tape;

3.1.2. Covering the floor with plastic and sealing the plastic covering from the floor to the plastic on the walls; and

3.1.3. Sealing any penetrations which may occur due to pipes, electrical conduits and the like with a minimum of two (2) layers of six (6) mil poly plastic sheeting and tape.

3.2. If a small change room (approximately three [3] square feet) is required, then it shall be made of a minimum of two (2) layers of six (6) mil poly plastic sheeting supported by at least 2" x 4" lumber. The change room shall be adjacent to the mini-containment. A change room shall be required when it is necessary to allow persons who enter to vacuum off and remove disposable protective coveralls, before leaving the work area.

4. Removal Procedures - Glovebag Removal (Limited Containment)

4.1. Glovebags may only be utilized for the abatement of ACM from pipes, elbows and pipe fittings.

4.2. The work area where the technique is to be utilized shall be roped off and appropriate caution and/or danger signs posted on the perimeter to prevent unauthorized personnel from entering the work area.

4.3. All necessary materials and supplies shall be brought into the work area before any removal begins.

4.4. One air change every fifteen (15) minutes shall be provided in a glovebag work area.

4.5. If no mini-containment is established, the Contractor shall arrange for shutting down and sealing off all electrical, heating, cooling, and ventilation or other air handling systems.

4.6. The following is a list of equipment and tools for the removal of asbestos by the glove bag technique:

4.6.1. Glovebag(s) in suitable number, size and configuration for the specific abatement project. The glovebag is an air-tight, tear-resistant enclosure, designed to enclose an object from which asbestos containing material is to be removed, constructed of a minimum of six (6) mil polyethylene or other suitable material with inward projecting.

4.6.2. A pump-up sprayer (garden type) with a two or three gallon capacity;

4.6.3. Wetting agent: Amended water (water with a surfactant) or a removal encapsulant;

4.6.4. Six (6) mil polyethylene disposal bags or leak-proof containers with the proper

markings for asbestos waste;

4.6.5. A HEPA filtered vacuum with a capillary tube for insertion into the glovebag;

4.6.6. Tools such as a small scrub brush, a utility knife for cutting the insulation, a stapler, wire cutters, smoke tubes with aspirators bulb, a bone saw, or other appropriate tool, tin snips, duct tape and wettable cloths;

4.6.7. A roll of six (6) mil polyethylene; and

4.6.8. An encapsulant (tinted).

4.7. Removal procedures shall be conducted as follows:

4.7.1. A visual inspection of the pipe where the work will be performed shall be made to determine if any damaged pipe covering (such as broken lagging, of hanging) exists. If there is damage, then the affected portion of the pipe shall be wrapped in polyethylene and fully secured with duct tape. This procedure will prevent excessive airborne fiber concentrations from occurring during the glove bag work caused by pipe lagging, hanging several feet or even several yards away which may be jarred loose by the activity. All dust and debris on the floor and other surfaces which has accumulated due to the abatement project and which contains asbestos shall be cleaned up as necessary. If the pipe undamaged, one layer of duct tape shall be placed around the pipe at each end where the glovebag will be attached. This permits a good surface to which to seal the ends of the glovebag, and it minimizes the change of releasing fibers when the tape at the ends of the glovebag is peeled off at the completion of the project.

4.7.2. Slit the top of the glovebag open (if necessary) and cut down the sides to accommodate the size of the pipe (about two (2) inches longer than the pipe diameter).

4.7.3. Place the necessary tools into the pouch located inside the glovebag. This will usually include the bone saw, utility knife, rags, scrub brush, wire cutters, tin snips and pre-cut wettable cloth. Cut out a donut shape in the cloth with the inner diameter one-half-inch smaller than the diameter of the pipe beneath the insulation. The outer diameter of the donut should be three (3) inches longer than the diameter of the pipe insulation being removed. Finally, cut a slit in each of the two (2) donuts so they can be slipped around the pipe. A piece of cloth that can be easily bent around the surface to be cleaned may be used instead of the donut-shaped cloth.

4.7.4. One strip of duct tape shall be placed along the edge of the open top slit of the glovebag for reinforcement.

4.7.5. Place the glovebag around the section of pipe to be worked on and staple the top

together through the reinforcing duct tape. Staple at intervals of approximately one (1) inch. Next, fold the stapled top flap back and tape it down with a strip of duct tape. This should provide an adequate seal along the top. Next, duct tape the ends of the glovebag to the pipe itself, previously covered with polyethylene or duct tape (see 14.a) above). The bottom seam of the glovebag shall be sealed with high quality duct tape or equivalent to prevent any leakage from the bag that may result from a defect in the bottom seam.

4.7.6. Before the commencement of the abatement work, but after the glovebag is attached, the Contractor shall smoke test each glovebag to ensure that it does not leak. The A.S.T. shall personally witness the smoke testing of each of these glovebags. Using the smoke tube and aspirator bulb or other approved smoke generating device, place the tube into the wetting agent sleeve (two-inch opening to glovebag). Fill the bag with visible smoke. Remove the smoke tube and twist the wetting agent sleeve to close it. While holding the wetting agent sleeve tightly, gently squeeze the glovebag and look for smoke leaking out, especially at the top ends of the glovebag. If leaks are found, they shall be taped closed using duct tape and the bag shall be re-tested.

4.7.6.1. Exception: If negative pressure is established and maintained at .02 inches w.c., smoke testing of glovebags is not required.

4.7.7. Insert the wand from the wetting agent sprayer through the wetting agent sleeve. Using duct tape, tape the wetting agent sleeve tightly around the wand to prevent leakage.

4.7.8. One person places his hands into the long-sleeved gloves while the second directs the wetting agent spray at the work.

4.7.9. If the section of pipe is covered with a protective jacket, this is removed first, using the wire cutters to cut any bands and the tin snips to remove the jacket. It is important to fold the sharp edges to prevent cutting the bag when it is placed in the bottom. A box may be put in the bottom of the bag when the tools are placed in, and the metal placed in the box to further protect the bag from being cut.

4.7.10. With the insulation exposed, using the bone saw, cut the insulation at each end of the section to be removed. A bone saw is a serrated heavy-gauge wire with ring-tube handles at each end. Throughout this process, wetting agent is sprayed on the cutting area to keep dust to a minimum.

4.7.11. Once the ends are cut, the section of insulation should be split from end to end using the utility knife. The cut should be made along the bottom of the pipe and the wetting agent continuously supplied, again, care should be taken when using the knife not to puncture the bag. Some insulation may have wire to be clipped as well. Again, a box may be used in 14.i above to protect the bag from puncture.

4.7.12. Rinse all tools with wetting agent inside the bag and place back into pouch.

4.7.13. The insulation can now be lifted off the pipe and gently placed in the bottom of the bag, while the side of the insulation adjacent to the pipe is being thoroughly wetted.

4.7.14. Using the scrub brush, rags and water, scrub and wipe down the exposed pipe.

4.7.15. Wet the donut-shaped pieces of wettable cloth over the exposed ends of the insulation remaining on the pipe.

4.7.16. Remove the wetting agent wand from the wetting agent sleeve and attach the small nozzle from the HEPA-filtered vacuum. Turn on the vacuum only briefly to collapse the bag.

4.7.17. Remove the vacuum nozzle and twist the wetting agent sleeve closed and seal with duct tape.

4.7.18. Remove all the tools and draw them out into one of the arm sleeves, twist the sleeve tightly, and seal with tape, and cut the sleeve away from the bag, cutting through the tape. In this manner, the contaminated tools may be placed directly into the next glovebag without being cleaned. Alternatively, the sleeve with the tools in it can be placed in a bucket of water, opened underwater and dried without releasing asbestos into the air. This water shall be handled as asbestos-contaminated waste. Rags and scrub brushes cannot be cleaned in this manner and should be discarded with the asbestos-contaminated waste. No more than one (1) use of a glovebag shall be permitted.

4.7.19. With removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glovebag from the pipe.

4.7.20. Slip a six (6) mil disposal bag over the glovebag (still attached to the pipe). Remove the tape and open the top of the glovebag and fold it down into the disposal bag.

4.7.21. All surfaces in the work area should be cleaned using disposable cloths wetted with wetting agent. These cloths shall be disposed of or rinsed thoroughly to eliminate visible accumulation of debris. Then, when these surfaces have been allowed to dry, all surfaces shall be cleaned again using a HEPA filtered vacuum. If no mini-containment was built, the entire room shall be cleaned.

4.7.22. Place all contaminated articles or debris into the bag with waste.

4.7.23. Twist the top of the bag closed, fold this over, and seal with duct tape. Label the bag with labels prescribed by 40 CFR. Part 61, Subpart M of the USEPA, 29 CFR 1926 of OSHA and 49 CFR-Parts 100-199 of the US DOT Hazardous Waste Hauling regulations.

4.7.24. Asbestos-containing waste material shall be disposed of as specified in N.J.A.C.

5:23-8.22.

4.7.25. Air sampling shall be conducted after completion of glovebag projects pursuant to N.J.A.C. 5:23-8.21 to determine if undetected leakage occurred. Once the area has been found to be safe for re-entry by unprotected personnel, the barriers may be removed.

5. Removal Procedures – Asbestos Removal

5.1. Referring to Drawings

5.1.1. The Contractor shall reference the applicable drawings accompanying this specification (when available) for location of work to be completed.

5.2. Removal Method

5.2.1. The work area shall be cleaned and isolated in accordance with N.J.A.C. 5:23-8, this specification, and the A.S.T.

5.2.2. The asbestos containing material shall be sprayed with water containing an additive to enhance penetration (amended water). All wetting agents shall be tested on a small area before use to ensure effectiveness. A fine low-pressure spray of this solution shall be applied to prevent fiber disturbance preceding removal. The wetted or amended water shall be sprayed on as many times, and as often as necessary, to ensure that the asbestos material is adequately wetted throughout (especially the asbestos nearest the substrate) to prevent dust emission. NO DRY REMOVAL OF ASBESTOS IS PERMITTED.

5.2.3. As a method of organizing the asbestos removal work, workers shall begin working on the areas nearest to the decontamination unit and work towards the HEPA air filtration units.

5.2.4. The wet material from each section shall be packed and sealed into labeled six (6) mil polyethylene bags and double bagged with visible labels or placed in labeled, leak-proof containers, prior to starting the next section. Water-soaked fallen material shall be picked up while wet.

5.2.5. Contaminated material containing sharp edged items shall be cut to manageable size while adequately wet, singly bagged and then placed in suitable leak-tight and puncture-proof containers or wrapped individually in to separate polyethylene sheets and double bagged.

5.2.6. Bags and drums shall be marked with the label prescribed by 40 CFR, Part 61, Subpart M of the US EPA, 29 CFR 1926 of OSHA, and 49 CFR-Parts 100-199 of the US DOT Hazardous Waste Hauling regulations. The outside of all containers shall be wet-cleaned or HEPA vacuumed before leaving the work area.

5.2.7. After completion of this removal phase (stripping), all surfaces from which asbestos

has been removed shall be scrubbed using nylon or bristle brushes and wet sponged or cleaned by an equivalent method to remove all visible asbestos containing material. During this work, the surfaces being cleaned shall be kept wet using amended water or a removal encapsulant. All disposable equipment shall be packaged for disposal. Containers shall be washed with amended water and shall have all exterior particulate matter removed prior to removal from the contaminated area.

5.2.8. All accessory equipment shall be moved to the equipment room and decontaminated for removal.

5.2.9. All free water (in contaminated areas) shall be retrieved and added to asbestos-contaminated waste and/or solidified with an acceptable polymer or it shall be filter using a five (5) µm filter and disposed of in the sanitary drain, if allowed by local treatment works by regulation or as allowed by permit.

5.2.10. After all gross removal and fine cleaning has been performed in the area, the Contractor will request a pre-sealant inspection of the area by the project A.S.T. This request will be made in writing and submitted to the A.S.T. forty-eight (48) hours in advance of the inspection. If the area is passed or failed by the A.S.T., a notice of inspection results will be completed and issued to the Owner/Representative and the Contractor.

6. Asbestos Disposal and Transport

6.1. The disposal of friable/non-friable asbestos-containing material and asbestos-contaminated waste from the project site shall be in accordance with New Jersey Department of Environmental Protection and Energy requirements specified in N.J.A.C. 726 and 40 CFR Part 61, Subpart M.

6.2. A notification of intent to dispose of asbestos shall be sent to the New Jersey Department of Environmental Protection at least ten (10) days prior to actual disposal. The notification shall be sent to the Division of Waste Management, Bureau of Field Operations, 120 Route 156, Yardville, New Jersey, 08620, pursuant to N.J.A.C. 7:26-1 et seq.

6.3. All asbestos waste materials destined for disposal shall be wetted and packaged in permanently sealed, leak-tight containers (such as six (6) mil polyethylene bags, double bagged with visible labels) in accordance with 40 CFR 61.140-158 (Subpart M) before it can be legally transported and disposed of. No haulage of loose asbestos is permitted.

6.4. A locked, secure container shall be provided if asbestos waste is to be stored outside unattended.

6.5. The notification above shall include the following:

6.5.1. Name, address, and telephone number of the removal project;

6.5.2. Quantity and nature of the waste to be disposed;

6.5.3. Name, address, and NJDEP registration number of the collector-hauler.

6.5.4. Name and address of the landfill at which disposal will occur;

6.5.5. Date and time of disposal;

6.5.6. A copy of any written notification required by 40 CFR 61.146 and 61.155.

6.6. Asbestos waste which is properly packaged is classified as Waste ID No. 27, non-hazardous industrial waste, and shall be disposed of at a landfill which is registered by the NJDEP in conformance with the following:

6.6.1. A vehicle that is registered by the NJDEP shall take the asbestos waste container to the landfill;

6.6.2. The landfill used must be registered by the NJDEP to accept Waste ID No. 27;

6.6.3. The specific landfill facility chosen must be one designated by the New Jersey Department of Environmental Protection to accept Waste ID No. 27;

6.6.4. The waste hauler must possess a valid solid waste transporter registration issued by the NJDEP. A licensed solid waste transporter shall be a commercial collector/hauler or shall be the removal company if they are so registered.

6.6.5. Asbestos waste can be hauled in trucks or in dumpster containers provided the load is comprised only of asbestos in bags and does not contain any other wastes or asbestos-containing wastes which could compromise the integrity of the permanent containers;

6.6.6. If rough surfaces or other materials are present in the load which could potentially puncture the permanent containers, then those containers shall be enclosed in temporary fiber or steel drums during loading, transport, and unloading operations. In addition, asbestos wastes shall not be loaded into or hauled with vehicles containing compaction devices.

END OF SECTION FIVE

Section Six: Contingency Plan Occupied Buildings Only

1. These are the minimum requirements, which shall be enforced by EDI. These requirements shall not limit EDI from instituting additional requirements, if necessary, for the protection of the building occupants.

    1.1. If the negative pressure differential drops below -0.05 inches w.c. the following procedures shall be implemented:

        1.1.1. The A.S.T. and the Contractor supervisor shall investigate and evaluate the engineering controls to determine the source of the pressure loss.

        1.1.2. The Contractor shall institute corrective action such as: additional sealing, critical barrier maintenance and construction, changing of exhaust unit filters, adjustment of make-up air, operation of additional exhaust units or other necessary measures to reestablish an acceptable pressure differential.

2. If the pressure differential drops below 0.01 inches w.c., the following procedures shall be implemented:

        2.1.1. The Contractor shall cease abatement activity in the work area.

        2.1.2. EDI shall notify the Building Owner to evacuate the pressurized space(s). The pressurized space(s) shall include all space outside the work area which is pressurized to maintain the required pressure differential relative to the work area and is isolated from the rest of the building in terms of airflow. The pressurized space may include the entire building exclusive of the work area or any part of the building that is pressurized to isolate it from the work area.

        2.1.3. The A.S.T. and the Contractor supervisor shall investigate and evaluate the engineering controls and determine the source of the pressure loss.

        2.1.4. The Contractor shall institute corrective action such as: additional sealing, critical barrier maintenance and construction, changing of exhaust unit filters, adjustment of make-up air, operation of additional exhaust units or other necessary measures to reestablish an acceptable pressure differential.

        2.1.5. Re-occupancy shall not be permitted in any area unless a pressure differential of 0.05 inches w.c. or greater is reestablished.

        2.1.6. If a pressure differential of 0.05 inches w.c. or greater is not reestablished within twenty-four (24) hours of the first reading below 0.01 inches w.c., then the building shall be evacuated.

            2.1.6.1. If air levels exceed 0.010f/cc, the following procedures shall be

implemented.

2.1.6.2. The A.S.T. and the Contractor supervisor shall investigate and evaluate the engineering controls to determine the source of the high air level.

2.1.6.3. An additional/second PCM air sample shall be taken at each place at which a high air level was obtained. The additional/second PCM sample may be split, and if the result of the air sample is less than or equal to 0.010 f/cc the contingency plan is terminated. If the result of the air sample exceeds 0.010 f/cc, the Contractor, in consultation with Applied Environmental Technology Inc., shall choose the option of cleaning and retesting by PCM analysis or analyzing the split sample by TEM analysis. If the result of the TEM analysis exceeds 0.010 f/cc, the cleaning shall be undertaken.

2.1.6.4. The decision as to the timing of the cleaning activity shall be made by the asbestos safety control monitor firm in consultation with the Building Owner and the Contractor.

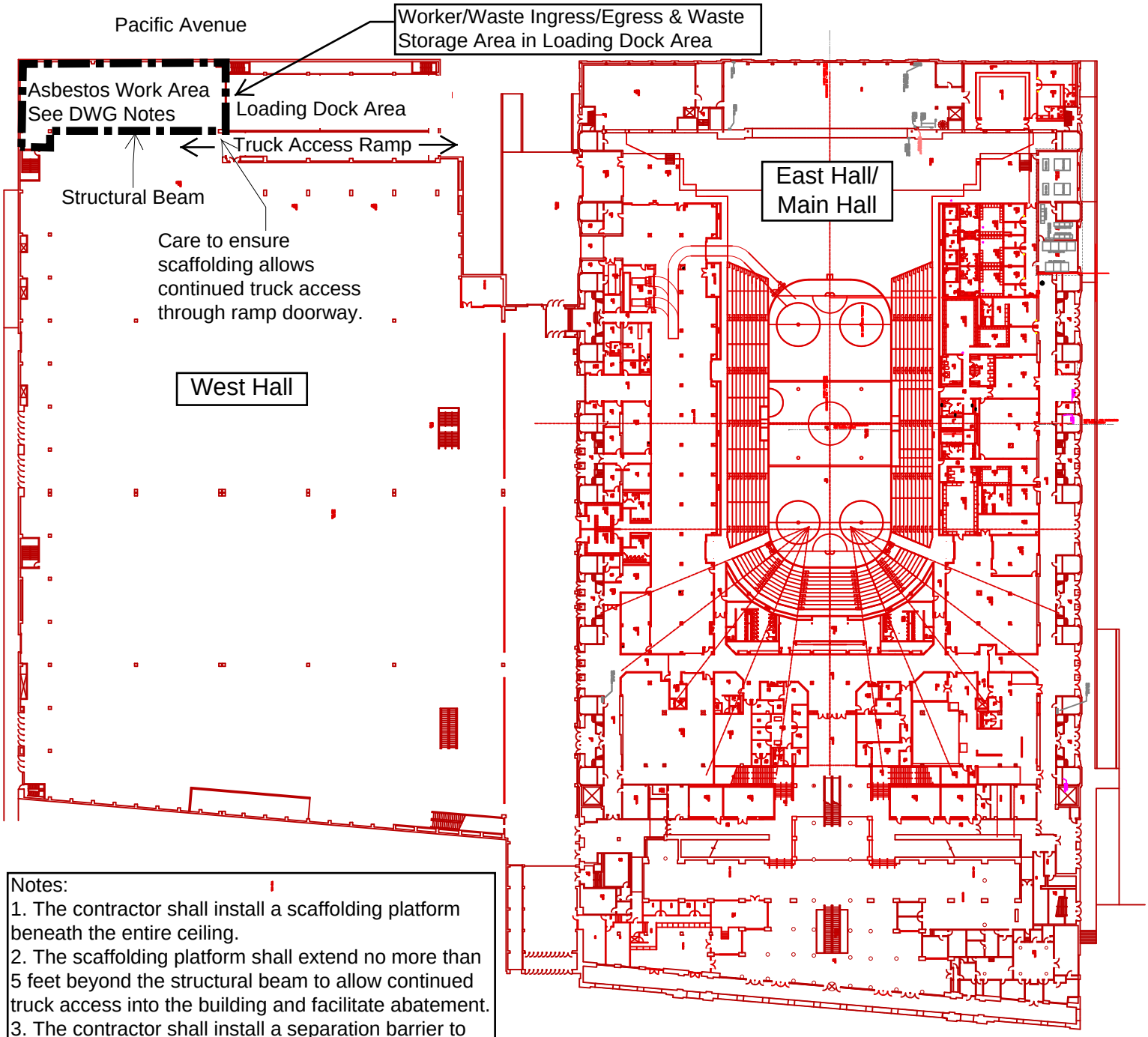
2.1.6.5. Cleaning shall include, but not be limited to, wet wiping and misting the air. Cleaning the affected area shall be continued outside of containment and PCM sampling shall also be continued unit the result in the area is equal to or less than 0.10 f/cc by either PCM or TEM analysis.

2.1.6.6. If laboratory analysis of air samples does not yield a reading less than or equal to 0.010 f/cc with twenty-four (24) hours of receipt of the test result above 0.010 f/cc, then the building must be evacuated.

2.1.6.7. Re-occupancy shall not be permitted in any area where PCM analysis reveals results greater than 0.010 f/cc, unless TEM results indicate asbestos fibers are equal to or less than 0.010 f/cc. In the case of re-occupancy, all air samples used to make the determination to allow reentry shall be analyzed by an accredited laboratory.

2.1.6.7.1. If a power outage occurs during active abatement work, the building occupants shall be evacuated until the air samples determine that the occupied spaces are safe, and power has been restored. If a power outage occurs when the building is unoccupied, occupancy will not be permitted until air samples determine that the spaces to be occupied are safe and power has been restored.

Section Seven: Drawings



Notes:
1. The contractor shall install a scaffolding platform beneath the entire ceiling.
2. The scaffolding platform shall extend no more than 5 feet beyond the structural beam to allow continued truck access into the building and facilitate abatement.
3. The contractor shall install a separation barrier to enclose the entire work area, roll up door at Loading Dock, and on the doorway leading upstairs to the mechanical areas.
4. The Contractor shall utilize the Loading Dock Area for staging and ingress/egress into the work area.
5. Decontamination chamber to be installed beneath the scaffolding platform.
6. Contractor shall install a locked and louvered door in separation barrier at the Loading Dock Roll-up door
7. Make-up air to be drawn from Loading Dock area unless outside temperature warrants drawing make-up through separation inside the building.
8. HEPA exhaust to be vented outside through Loading Dock door.
9. Occupants will have full access to all areas of the building except the asbestos work area and Loading Dock.

Jim Whelan Boardwalk Hall
Asbestos Abatement
West Hall - Pacific Avenue
Work Area Drawing
October 2019
Environmental Design, Inc.
ASCM #0095
N.T.S.