EAGLE Environmental, Inc.

- **Industrial Hygiene / IAQ**
- **Hazardous Building Materials**
- **Environmental Assessments**
- **Laboratory Services & Training**

June 16, 2017

Mr. Mike Urgo
Chairman, Building Committee
Purchasing Office
North Stonington Town Hall
40 Main Street
North Stonington, Connecticut 06359

RE: **Specifications: Hazardous Materials Abatement**
Wheeler Middle and High School
298 Norwich-Westerly Road
North Stonington, Connecticut
State Project No. 102-0025 EA/RR
Eagle Project No. 17-013.13T1

Dear Mr. Urgo:

Enclosed please find the following Specifications related to the Phase I renovations to Wheeler Middle and High School located at 298 Norwich-Westerly Road in North Stonington, Connecticut: Division 1 Sections for Hazardous Materials Abatement Unit Prices (010260) and Allowances (012100); and Division 2 Sections for Hazardous Materials General Requirements (Section 020100), Hazardous Materials Scheduling and Phasing (Section 020160), Hazardous Materials Contract Closeout (Section 020700), Selective Demolition for Hazardous Materials Abatement (Section 020750), Asbestos Abatement (Section 020800), Universal Waste Reclamation (Section 020820), Lead Paint Awareness (Section 020900) and PCB Remediation Plan (Section 028400).

If you have any questions regarding this specification, please call us at (860) 589-8257. Thank you for this opportunity to have served your environmental needs.

Sincerely,
Eagle Environmental Inc.

Chris Liberti
Senior Project Manager
(Asbestos Project Designer License #000261)

Ashis Roychowdhury
Executive Vice President
(Asbestos Project Designer License #000145)
(Lead Project Designer License #001036)

cc: Paul Wojtowicz, Downes Construction
Rusty Malik, Quinsenberry Arcari Architects

\\Eaglesvr\public\2017 Files\2017 Specs\North Stonington, Town of\Middle School plans and specs\spec set\Final spec set\Cover letter.docx

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DIVISION 1

SECTION 010260 – HAZARDOUS MATERIALS ABATEMENT UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the project Scope of Work is altered.

B. Unit prices shall include costs of all materials, all direct or indirect expenses of the HMAC or Sub-Contractors, profit, insurance, bonding, and any applicable taxes. For deleted work, the net credit to the contract shall be 10% less.

C. Unit prices shall be used for work outside of the base bid and to quantify actual value of quantity allowances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 UNIT PRICE SCHEDULE

A. Unit Prices in accordance with the following schedule will apply to this Contract. Unit prices include labor, disposal, and all necessary fees.

Item No. 1 – ASBESTOS CONTAINING THERMAL SYSTEM INSULATION (If found in excess of quantities included in the Base Bid), REMOVAL AND DISPOSAL AS ASBESTOS WASTE.

$_____ per linear foot.

Item No. 2 – ASBESTOS CONTAINING MATERIAL ABATEMENT, REMOVAL AND DISPOSAL UTILIZING GLOVEBAG FOR LESS THAN 3 LF/SF OF MATERIAL

$_____ per glovebag.

Item No. 3 – WINDOW GLAZING COMPOUND (If found in excess of quantities included in the Base Bid), REMOVAL AND DISPOSAL AS ASBESTOS AND PCB BULK PRODUCT WASTE

$_____ per window.

Item No. 4 – VALVE PACKING AND GASKETS (If required in excess of quantities included in the Base Bid), REMOVAL AND DISPOSAL AS ASBESTOS WASTE

$_____ per unit (each).

Item No. 5 – EXTERIOR CAULK (If found in excess of quantities included in the Base Bid), REMOVAL AND DISPOSAL AS ASBESTOS-PCB BULK PRODUCT WASTE

$_____ per linear foot.

Item No. 6 – MIRROR, TACKBOARD OR CHALKBOARD ADHESIVE, REMOVAL AND DISPOSAL AS ASBESTOS AND PCB BULK PRODUCT WASTE

$_____ per square foot.

Item No. 7 – PREPARATION OF A SMALL CONTAINMENT (for abating asbestos >3 SF/3 LF but <260 LF/160 SF) WITH DECONTAMINATION UNIT (including remobilization, if necessary)

$_____ per containment.

Item No. 8 – PREPARATION OF A LARGE CONTAINMENT (for abating asbestos >260 LF/160 SF) WITH DECONTAMINATION UNIT (including remobilization, if necessary)

$_____ per containment.

Item No. 9 – PCB-CONTAMINATED SOIL, REMOVAL AND DISPOSAL AS PCB REMEDIATION WASTE

$_____ per cubic yard.

Item No. 10 – PCB-CONTAMINATED TECTUM OR FIBERBOARD ROOF DECK, REMOVAL AND DISPOSAL AS PCB REMEDIATION WASTE >50 PPM

$_____ per cubic yard.

Item No. 11 – PCB-CONTAMINATED AND LEAD-BASED PAINT COATED STEEL, REMOVAL AND DISPOSAL AS CONNECTICUT REGULATED PCB AND HAZARDOUS LEAD WASTE

$_____ per ton.

Item No. 12 – VINYL FLOOR TILE AND ASSOCIATED PCB CONTAINING MASTIC (All Layers to Bare Concrete), REMOVAL AND DISPOSAL AS CONNECTICUT REGULATED PCB WASTE (CR01).

$_____ per square foot.

END OF SECTION 010260

SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.

C. The allowances have been established to account for certain conditions that may be present in the building and cannot be verified due to the operational status of the building. Verification of such conditions would result in a destructive investigation, which was not feasible at the time the Contract Documents were developed.

D. Types of allowances include the following:

E. Quantity allowances.

F. Related Sections:

1. Division 01 Section 010260 Unit Prices for procedures for using unit prices.
2. Division 02 Sections 020800, 020900 and 028400 for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Owner’s Consultant of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. The Hazardous Building Materials Contractor, in conjunction with the Owner’s Consultant, will perform investigations to verify if such conditions exist which require allowances to be applied.

C. At Owner’s Consultant request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.4 SUBMITTALS

A. Submit actual quantities of materials removed and disposed of for use in fulfillment of each allowance.

B. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work.

1.6 QUANTITY ALLOWANCES

A. Allowance shall include cost to Contractor of specific products, materials, labor; disposal ordered by Owner or selected by Owner's Consultant under allowance and shall include all applicable taxes.

B. The value of each quantity allowance shall be adjusted using the Contractor's unit price to reflect actual quantity of material removed and disposed of. All quantity allowances shall include overhead, profit, taxes, labor, containment, materials and proper disposal.

C. The value of each quantity allowance in the Bid shall be based on the quantity provided in each allowance. The quantity provided in each allowance is an estimate only and may not reflect the actual quantity of material present. The actual value of the quantity allowance will be determined by identifying the actual quantity of material present at the time of the verification inspection.

1.7 TESTING AND INSPECTING

A. The allowance does not include incidental labor required to assist the testing agency or costs for the verification inspection. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.

B. Costs of services not required by the Contract Documents are not included in the allowance.

1.8 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable.

B. Include labor and disposal as part of each allowance.

C. Include overhead, profit and taxes as part of each allowance.

D. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

E. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

F. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.

G. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.4 EXAMINATION

A. Examine materials and existing conditions affecting each allowance.

3.5 PREPARATION

A. Coordinate work for each allowance with related work to ensure that each allowance item is completely integrated and interfaced with related work.

3.6 SCHEDULE OF ALLOWANCES

A. Coordinate quantity allowance adjustment with unit price requirements of Division 01 Section "Unit Prices."

1. ALLOWANCE #1 – REMOVAL AND DISPOSAL OF EIGHT-THOUSAND FIVE-HUNDRED (8,500) SQUARE FEET OF FIBERBOARD ROOF DECK PANELS AS PCB REMEDIATION WASTE GREATER THAN FIFTY PPM
2. ALLOWANCE #2 – REMOVAL AND DISPOSAL OF FIFTY (50) TONS OF STRUCTURAL STEEL AS CONNECTICUT REGULATED PCB AND LEAD BASED PAINT WASTE
3. ALLOWANCE #3 – REMOVAL AND DISPOSAL OF ONE HUNDRED FIFTY (150) LINEAR FEET OF ASBESTOS CONTAINING THERMAL SYSTEM INSULATION WITHIN PLUMBING WALLS

END OF SECTION 012100

DIVISION 2

SECTION 020100 – HAZARDOUS MATERIALS GENERAL REQUIREMENTS

PART 3 - GENERAL

3.4 RELATED DOCUMENTS

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

B. Related Sections:

1. Section 010260: Hazardous Materials Unit Prices
2. Section 012100: Allowances
3. Section 020160: Hazardous Materials Scheduling and Phasing
4. Section 020700: Hazardous Materials Contract Closeout
5. Section 020750: Selective Demolition for Hazardous Materials Abatement
6. Section 020800: Asbestos Abatement
7. Section 020820: Universal Waste Reclamation
8. Section 020900: Lead Paint Awareness
9. Section 028400: PCB Remediation Plan

3.5 SECTION INCLUDES

A. HMAC Qualifications

B. HMAC Use of Site and Premises

C. Work Phasing

D. Owner's Operations

E. Close Out and Punch List

F. Cleaning

G. Additional General Requirements

3.6 HAZARDOUS MATERIALS ABATEMENT CONTRACTOR (HMAC) QUALIFICATIONS

A. All bidders shall submit a record of prior experience in asbestos, lead, PCB remediation and universal waste reclamation projects listing no less than three (3) completed jobs in the past year, with all projects of similar size and scope. The Hazardous Materials Abatement Contractor (HMAC) shall list the experience and training of the site supervisor and all on-site workers. The information that shall be included is as follows:

1. Project Name and Address
2. Owner's Name and Address
3. Architect/Consultant/Construction Manager
4. Contract Amount
5. Date of Completion
6. Extras and Change Orders

B. The HMAC selected must appear on the approved list of Asbestos Abatement contractors on file at the State of Connecticut Department of Public Health (CTDPH). In addition, the HMAC must be on the approved list of contractors for asbestos abatement by the State of Connecticut Department of Administrative Services (CTDAS).

C. Submit a written statement regarding whether the HMAC has ever been found out-of-compliance with federal or state asbestos and/or lead regulations pertaining to worker protection, removal, transport, or disposal.

D. Award of this Contract may not necessarily be based solely on the submitted lowest Base Bid amount. The Owner reserves the right to award this Contract to the Bidder who best meets all HMAC qualifications.

3.7 HMAC'S USE OF SITE AND PREMISES

A. Limit use of site and premises as follows:
1. Owner occupancy.
2. Work by Owner.
3. Use of site and premises by public.

B. Coordinate use of the premises under direction of Owner.

C. Assume full responsibility for protection and safekeeping of products under this Contract.

D. The HMAC shall not interfere with general Site operations. The HMAC shall coordinate parking for employees with the Owner.

E. The HMAC shall coordinate location of waste container(s) with Owner and Construction Manager.

3.8 WORK PHASING

A. Work under this project will be performed in phases to accommodate Owner's/Architect's requirements and remaining construction phases. Coordinate abatement schedule and operations with the Owner/Architect/Consultant and other trades.

B. The HMAC shall become familiar with the phasing of this work and shall include the required mobilization and re-mobilization as necessary to support the work phasing.

C. The building will remain vacant during the abatement and no student or child under eighteen (18) years of age shall be present.

3.9 OWNER'S OPERATIONS

A. Schedule the Work to accommodate this requirement.

B. Maintain means of egress.

C. Coordinate Work with the Owner, the Architect, and the Consultant.

D. Maintain the fire alarm and fire detection systems active at all time during construction.

E. Maintain permanent means of egress during construction. Provide and maintain temporary means of egress as required by Fire Marshall.

3.10 CLOSEOUT AND PUNCH LIST

A. The HMAC shall carefully check his/her own work and that of any Subcontractor as the work is being performed. Unsatisfactory work shall be corrected immediately.

B. When the HMAC determines that he is substantially complete, that is, has less than one percent of his Contract remaining to be completed, he shall prepare for submission to the Consultant, a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the HMAC to complete all work in accordance with the Contract Documents.

C. Upon receipt of the HMAC's list of items to be completed or corrected, the Consultant will promptly make a thorough inspection and prepare a "punch list" setting forth in accurate detail any items on the HMAC's list and any additional items that are not acceptable.

D. When the "punch list" has been prepared, the Consultant will arrange a meeting with the HMAC to identify and explain all punch list items and answer questions on the work that must be completed before final acceptance.

E. The HMAC shall correct all "punch list" items or shall cause the correction of the "punch list" items within a time frame to be established when the "punch list" is made. The time frame for the completion of the "punch list" shall not exceed the completion date of the Contract. Should the "punch list" not be completed within the specified time frame, the Owner may invoke the rights given under the General Conditions.

F. The Consultant shall not be expected to inspect any area more than once for the preparation of the "punch list" items. If, during an inspection, the Consultant discovers five (5) or more deficient conditions, then the area shall be declared "Not Ready" for Inspection.

G. All inspections and sampling required for hazardous materials abatement compliance will be performed by the Consultant.

3.11 CLEANING

A. Throughout the construction period, the HMAC shall maintain the building and the site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

3.12 ADDITIONAL GENERAL REQUIREMENTS

A. The HMAC shall employ a competent and English-speaking Asbestos Abatement Supervisor with at least three (3) years' experience on projects of similar scope and magnitude. The Supervisor shall be responsible for all work involving hazardous materials abatement as described in the specifications and defined in the applicable regulations, and have full time daily supervision of the same. The Supervisor shall be the "Competent Person" as defined by OSHA regulations.

B. The HMAC shall allow the work of this contract to be inspected, if required, by local, state, federal, and any other authorities having jurisdiction over such work. The HMAC shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.

C. The HMAC shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The HMAC shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.

D. The HMAC shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

E. Wages and contributions to be paid to the workers to be employed on this project shall not be less than those established by a schedule issued by the Connecticut Department of Labor, Wage and Workplace Standards Division (Prevailing Wage Rate) in accordance with Connecticut General Standards Section 31-53 inclusive. The HMAC must submit Certified Payroll with their invoices for payment.

PART 4 - PRODUCTS (Not Used)

PART 5 - EXECUTION (Not Used)

END OF SECTION 020100

SECTION 020160 – HAZARDOUS MATERIALS SCHEDULING AND PHASING

PART 1 - GENERAL

1.0 GENERAL REQUIREMENTS

A. Refer to the Architect's and the Construction Manager's Scheduling Plans for scheduling requirements. The work of this project shall begin immediately upon receipt of the "Notice to Proceed" from the Owner/ Construction Manager.

B. A Pre-Construction Meeting shall be scheduled by the Owner/Construction Manager and must be attended by the Hazardous Materials Abatement Contractor (HMAC) and any Sub-Contractors. The assigned Site Supervisor(s) must also attend this meeting.

C. A working schedule for each phase of work shall be presented by the HMAC at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed and the Owner/Construction Manager will inform the HMAC of additions or changes in the scheduling requirements for the project.

D. As a result of the Pre-Construction Meeting, the HMAC shall submit a revised schedule no later than three (3) business days from the Pre-Construction Meeting. Upon approval from the Owner/Consultant/Construction Manager, the HMAC will receive a "Notice to Proceed" with the work of the Contract.

E. Refer to all other applicable sections of the specification for coordination with other trades. The abatement HMAC shall coordinate work with all other activities at this occupied site.

1.2 PROJECT PHASING

A. The work of this project has been established in several construction phases. The demolition of the Wheeler Middle School is planned to begin in the summer of 2019 but is contingent on the completion of the new school and Elementary School. Refer to the overall Phasing Plan for specific time frames and locations of work.

B. The abatement work identified on the Hazardous Materials Abatement Plans will be performed within the time frame of the Owner, Architect, and Construction Manager.

C. The abatement work for this project will be performed when school is not in session. No children shall be on the school grounds including summer activities in school and on the school grounds.

1.3 TIME FOR COMPLETION AND WORKING HOURS

A. Upon award of contract from the Owner, the HMAC shall immediately order materials, supplies, and components for the work of this project.

B. The HMAC shall begin the work immediately upon receipt of the written "Notice to Proceed" from the Owner and confirmation of abatement schedule. The date of the commencement of the work is termed the "Construction Start Date." The HMAC will be required to complete all work of this Contract within the time period stipulated in the finalized schedule. The last day in the schedule is termed as "Contract Completion Date."

C. The HMAC shall also be assigned Phase Completion Dates within their contract. It will be imperative that the HMAC meet these completion dates to avoid damage claims by other subcontractors on the

project and to accommodate the school's teaching calendar. The Owner may include Liquidated Damage Clause in their Contract with the HMAC to recoup the cost of these claims.

D. If conditions arise that are beyond the control of the HMAC and force delays in the performance of the Work, the Owner/Construction Manger shall be immediately notified. The HMAC shall state the reason for the delay and shall estimate the expected duration of the delay. Any application for an extension of the Contract completion date shall be made under proper change order procedures. The acceptance of the cause for delay and change order is subject to the Owner's review and approval.

E. Work hours will be established in coordination with the Owner/Consultant/Construction Manager.

F. Any extra hours or days per week worked by the HMAC or Sub-Contractors shall be at no extra cost to the Owner. Denial of extra hours or days per week by the Owner shall not be grounds for extra time allotted to the overall Contract time. The HMAC shall be responsible for all overtime payment to cover Consultant's overtime fees for work performed above and beyond normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 02016

SECTION 020700 - HAZARDOUS MATERIALS CONTRACT CLOSE OUT

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 FINAL CLEANING

A. Unless otherwise specified under Sections of this Specification, the HMAC shall perform final cleaning operations as herein specified prior to final inspection.

B. Maintain the project site free from accumulations of waste, debris and rubbish caused by operations. At the completion of the work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave the project clean and ready for work of other trades.

C. Cleaning shall include all surfaces, interior and exterior, in which the HMAC has had access.

D. Use only those materials that will not create hazards to health or property.

1.3 ABATEMENT CLOSEOUT DOCUMENTS

A. Submit to the Owner/Consultant, final completed hard copies, via mail, all asbestos Waste Shipment Records (WSR), signed by all transporters and the designated disposal site owner/operator. WSR's shall be submitted to Consultant within thirty-five (35) calendar days from shipment of waste from site.

B. Submit to the Owner/Consultant, final completed hard copies, via mail, all hazardous lead waste manifests, signed by all transporters and the designated disposal site owner/operator. Manifests shall be submitted to Consultant within thirty-five (35) calendar days from shipment of waste from site.

C. Submit to the Owner/Consultant, final completed hard copies, via mail, all PCB waste manifests, signed by all transporters and the designated disposal site owner/operator. Manifests shall be submitted to Consultant within thirty-five (35) calendar days from shipment of waste from site.

D. Refer to each hazardous materials abatement section for specific post project submittal requirements.

E. Final payment will be withheld until receipt of all the above documentations and Certified Payroll to Owner's/Consultant's satisfaction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 020700

SECTION 020750 - SELECTIVE DEMOLITION FOR HAZARDOUS MATERIALS ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. The Hazardous Materials Abatement Contractor (HMAC) shall be responsible for performing selective demolition, as directed by the Owner's Consultant, to determine the presence of concealed asbestos-containing materials (ACM) within the work area(s). The selective demolition shall include but not be limited to localized areas of ceiling removal for evaluation of interstitial wall and ceiling spaces for concealed ACM that may be impacted by the demolition project, demolition of plaster, sheetrock, or concrete block walls to facilitate demolition and abatement work.

B. The HMAC shall be responsible for removing all floor-mounted cabinets and book shelves and equipment in order to remove flooring materials and windows. Also, provide selective demolition of partition walls and ceilings, as necessary, to access all asbestos-containing materials specified for removal. The HMAC shall be responsible for disconnecting, removing and disposing of all items and materials in order to gain access to flooring materials underneath. The HMAC shall obtain required permits to accomplish this work at no additional cost to the Owner.

C. The HMAC shall remove acoustical ceiling tiles to access asbestos mudded fittings above and to create containment areas.

D. Perform lead-based paint demolition of select components with surface coatings containing lead equal to or greater than 1.0mg/cm^2. Refer to Architect's Plans and Specifications for extent of demolition work. Refer to Lead Awareness Section 020900.

E. Related Sections:

1. Section 020800 – Asbestos Removal
2. Section 020820 – Universal Waste Reclamation
3. Section 020900 – Lead Paint Awareness
4. Section 028400 – PCB Remediation Plan

1.2 PROJECT CONDITIONS

A. Occupancy: Areas of the building in which selective demolition will occur will not be occupied during work.

B. Daily air monitoring shall be performed by the Consultant outside of abatement work areas. Air sample results exceeding the asbestos clean air standard of 0.010 f/cc may result in a shutdown of the abatement work. The HMAC shall be responsible for all remedial cleaning associated with shutdowns and that shall not be basis for delay claims.

C. Existing Conditions:

1. After the project has begun, the HMAC is responsible for the condition of the structures to be selectively demolished.
2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, investigate and fully submit an accurate, detailed, written report to the office of the Architect/Consultant. While awaiting a response, reschedule operations if necessary to avoid delay of overall project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and sealed.

B. Insofar as is practicable, arrange operations to reveal unknown or concealed conditions for examination and verification before removal or demolition.

C. Verify actual conditions to determine, in advance, whether removal or demolition of any element will result in structural deficiency, overloading, failure, or unplanned collapse.

D. Demolish and remove connections to all electrical and plumbing fixtures required to remove asbestos containing materials.

E. Demolish all building materials as required to access asbestos containing materials for abatement and remediation. Selective demolition that impacts asbestos materials shall be performed with engineering controls in place.

3.2 PREPARATION

A. Traffic: Do not obstruct walks or public ways without the written permission of governing authorities and of the Owner. Where routes are permitted to be closed, provide alternate routes if required.

B. Protection: Provide for the protection of persons passing around or through the area of demolition.

C. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.

3.3 POLLUTION CONTROLS

A. Control the spread of dust and dirt.

B. Observe environmental regulations.

C. Do not allow water usage that results in freezing or flooding.

D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.4 DEMOLITION - GENERAL

A. Remove: Items indicated to be removed shall be removed by the HMAC.

B. Existing to Remain: Construction or items indicated to remain shall be protected against damage during demolition operations. Where practical, and with the Owner’s permission, the HMAC may elect to remove items to a suitable storage location during demolition and then properly clean and reinstall the items.

C. Perform work in a systematic manner.

D. Demolish and remove existing structures only to the extent required, as indicated in the Contract Documents.

E. Perform selective demolition using methods that are least likely to damage work to remain and which will provide proper surfaces for patching.

F. Remove debris daily.

G. Use any methods permitted by governing regulations and the requirements of the Contract Documents.

H. Maintain noise levels as to not adversely impact occupied portions of the building.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of materials resulting from demolition operations. Non-contaminated material may be disposed of as construction waste. Do not allow materials to accumulate on site.

B. All rubbish and waste material from the Work shall be neatly stacked or kept in suitable containers and removed from the premises daily. The premises shall be kept clean and in an orderly condition at all times to the satisfaction of the Owner and the Consultant.

C. Transport materials resulting from demolition operations and legally dispose of off-site.

D. Off-site disposal location shall not be within one-half mile of any portion of the project site or within sight of the project site.

E. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

F. All disposal containers, receptacles, dumpsters shall be properly labeled and sealed from the onset of waste accumulation. Exterior waste containers shall be locked.

3.6 CLEANING

A. Throughout the abatement and remediation period, the HMAC shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all asbestos waste and PCB waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

END OF SECTION 020750

SECTION 020800 – ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The Wheeler Middle School located at 298 Norwich-Westerly Road in North Stonington, Connecticut will be undergoing demolition to support the School Modernization Project. The existing Middle School is comprised of the Original Building constructed in 1950 and an addition added in 1960. The Middle School is connected to the High School. The High School will not be demolished and is not included with this specification.

B. Asbestos containing material (ACM) testing has identified building materials in areas scheduled for demolition that contain asbestos. The work covered in this section includes the minimum procedures that shall be employed during abatement of the ACM.

C. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

D. Christopher Liberti of Eagle Environmental, Inc. is the designer of this Specification. Mr. Liberti is a State of Connecticut Department of Public Health (CTDPH) Licensed Asbestos Project Designer (License #000261).

E. The Base Bid asbestos abatement work of this project is listed on the Asbestos Containing Materials Scope of Work and Plans HM-1 through HM-3.

F. <u>During the work of this project, the school will not be in session and there shall not be students or children under the age of eighteen (18) present in the building or within the secured areas of the school grounds.</u>

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including Supplementary Conditions and other Division 1 and 2 Sections, of the Contract Documents apply to this Section.

1.3 PROJECT DESCRIPTION

A. The work to be performed includes but is not limited to the proper removal, handling, and disposal of all ACM that will be impacted during the demolition of the Middle School. The description of materials and approximate locations of ACM scheduled for removal are shown on the Hazardous Materials Abatement Plans HM-1 through HM-3. Asbestos removal work will include but not be limited to the following.

B. Base Bid asbestos abatement work shall include but not be limited to the ACM identified in the following Table 1- Base Bid. <u>The quantities given below are for reference only and are being provided to establish the order of magnitude of the abatement project. Actual quantities may vary. It is the sole responsibility of the Hazardous Materials Abatement Contractor (HMAC) to visit the site, review the Contract Documents and determine the quantities of ACM to be removed when developing their bid. Location and estimated quantities include:</u>

TABLE I – BASE BID		
LOCATION	**MATERIAL TYPE**	**ESTIMATED QUANTITY**
1950 Building Windows	Interior window glazing compound	10 openings at 10'x4' EA 1 opening at 8'x2' 49 openings at 7'x4' EA
1950 Building Windows	Exterior window frame and sill caulk	225 LF
1950 Building Façade D	Door/partition window glazing compound[(1)]	2 sashes at 4'x2' EA 4 sashes 2'x2' EA
1950 Basement and Tunnels	Window glazing compound	8 sashes 3'x1.5' EA
1950 Building Basement	Grey packing at water line penetration	1 EA. @ 0.5 SF
	Valve packing	2 EA
	Gaskets at heating line connections and valves	14 EA
1950 Tunnels	Aircell pipe insulation and debris in dirt floor	3,800 SF
1950 Building interiors	Mirror, tack board, and chalkboard adhesives[(1)]	400 SF
	Sink undercoatings	2 EA
	Black composite sink counter/backsplash	36 SF
	Green sink adhesive to composite countertop	8 LF
Assumed in wall cavities	Mudded pipe fitting cement	50 EA
1960 Facades A and D	Exterior window glazing compound[(1)]	72 openings 7'x4' EA
1960 Addition interiors	Yellow joint compound on sheetrock in classrooms at walls to hallway [(1)]	650 SF
	Cement board panels above windows[(1)]	400 SF
	Tack board adhesive under wood on walls[(1)]	824 SF
1960 Addition windows	Caulk at Tectum roof deck, window frames, and under sills[(1)]	1,100 LF
1960 Addition exteriors	Cement board panels above windows[(1)]	300 SF
Cafeteria roof wall	Residual gray caulk on roof wall	135 LF
Cafeteria roof wall	Black caulk on roof wall	75 SF

[(1)] Material to be disposed of as asbestos and PCB Bulk Product Waste

TABLE II - ALLOWANCES		
LOCATION	**MATERIAL TYPE**	**ESTIMATED QUANTITY**
Interior walls	Thermal system insulation	150 LF

C. Testing for polychlorinated biphenyls (PCB) has confirmed that materials containing greater than 50 parts per million (PPM) PCB exist within and on the structure. The removal and disposal of these materials and associated substrates is covered in Section 028400 PCB Remediation Action Plan.

D. Select materials in the above table also contain concentrations of PCB greater than 50 PPM and are noted. ACM identified for removal which contains concentrations of PCB greater than 50 PPM will be disposed of in accordance with Environmental Protection Agency (EPA) regulations.

E. Select materials in the above table also contain concentrations of PCB greater than 1 PPM but less than 50 PPM and are noted. ACM identified for removal which contain concentrations of PCB greater than 1 PPM but less than 50 PPM will be disposed of in accordance with the State of Connecticut Department of Energy and Environmental Protection (DEEP) regulations.

F. The HMAC shall coordinate the work of the Asbestos Abatement Section with that of the work of the Construction Manager (CM) and other impacted trades. It is the HMAC's responsibility to become familiar with the CM's construction phasing plan for the project and to include the required remobilization fees to support the phasing and remobilization throughout the project.

G. The HMAC shall determine the quantities of asbestos-containing materials requiring removal prior to submission of bid. Any discrepancies must be submitted in writing in RFI format to the CM for interpretation prior to submission of bid.

H. The HMAC shall be responsible for disposing of all asbestos-contaminated building materials, such as window frames, sashes, etc. in accordance with the above referenced waste classifications.

I. The HMAC shall be responsible for select wall and ceiling demolition, the removal of counters, cabinets, electrical, mechanical, plumbing systems and miscellaneous items to facilitate asbestos removal. Refer to Section 020750 Selective Demolition of Hazardous Materials Abatement for additional requirements.

J. Asbestos containing mudded fittings have been presumed in walls and ceiling cavities in select rooms. Mudded fittings will be removed as part of the base bid if this project.

K. The HMAC is directed to review the overall project schedule and phasing plan to assist them in developing their bid.

L. The HMAC is directed to review Section 020900 Lead Paint Awareness for additional requirements affecting the work of this section.

1.4 QUALITY ASSURANCE

A. The HMAC shall be licensed by the State of Connecticut Department of Public Health to perform asbestos abatement.

B. The Asbestos Abatement Supervisor(s) and Asbestos Abatement Workers shall be accredited in accordance with EPA regulation 40 CFR Part 763, subpart E, Appendix C; and shall be licensed by the State of Connecticut Department of Public Health.

1.5 APPLICABLE CODES

A. The HMAC shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state and local regulations and guidelines pertaining to asbestos abatement. Specifically, the HMAC shall comply with the requirements of the following:

1. USEPA AHERA Regulation (40 CFR 763 Final Rule and Notice);
2. USEPA NESHAP Regulations (40 CFR 61, Subpart M);
3. OSHA Asbestos Regulations (29 CFR 1910.1001 and 1926.1101);
4. Connecticut DEEP Regulations (Section 22a-209-8 (I) and Section 22a-220 of the Connecticut General Statutes);
5. Connecticut DPH Standards for Asbestos Abatement Sections 19a-332a-1 to 19a-332a-16;
6. Connecticut DPH Asbestos-Containing-Materials in Schools Regulations (19a-333-1 through 19a-333-13);
7. Connecticut DPH Licensure and Training Requirements Section 20-440-1 to Section 20-440-9.
8. Connecticut State Building Code;
9. Connecticut Fire Safety Code (NFPA);
10. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.6 EXEMPTIONS

A. This project was designed by a licensed State of Connecticut Department of Public Health Asbestos Abatement Designer. Any deviation from these specifications requires the written approval and authorization from the Designer.

B. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 and CTDPH Asbestos-Containing Materials in schools regulations 19a-333-1 through 19a-333-13 must be requested in writing and must be approved in writing by CTDPH.

1.7 NOTIFICATIONS, POSTINGS AND PERMITS

A. The HMAC shall make the following notifications and provide the submittals to the following agencies prior to the commencement of removal work <u>for each phase of the project</u>. <u>This notification is required ten (10) calendar days prior to the start of the abatement project for a particular phase</u>:

1. State of Connecticut
   Department of Public Health
   Indoor Air Program, MS #12 AIR
   410 Capitol Avenue
   P.O. Box 340308
   Hartford, Connecticut 06134-0308

   <u>Note:</u> Satisfies the requirement to notify the EPA (except when the amount of ACM to be abated is less than 10 linear/25 square feet or when the work involves demolition with zero asbestos. EPA needs to be notified directly in those situations).

B. The minimum information included in the notification includes:

1. Name and address of building owner/operator
2. Building location
3. Building size, age, and use
4. Amount of friable asbestos
5. Work schedule, including proposed start and completion date
6. Asbestos removal procedures to be used
7. Name and location of disposal site for generated asbestos waste, residue, and debris

C. Ten day notifications shall be posted for each individual phase of the project.

1.8 WORK SITE SAFETY PLAN

A. The HMAC shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:

1. Evacuation of injured workers.
2. Emergency and fire exit routes from all work areas.
3. Emergency first aid treatment.
4. Local telephone numbers for emergency services including ambulance, fire, and police.
5. A method to notify workers in the event of a fire or other emergency requiring evacuation of the building.
6. Confined space entry program.
7. 24 hour site security program.

B. The HMAC is responsible for training all workers in these procedures.

1.9 ALTERNATIVE WORK PRACTICES (AWP)

A. An AWP has been requested for the removal of thermal system insulation and debris from the tunnels utilizing critical barriers only to facilitate decontamination of the tunnel and associated piping. The procedures outlined in the AWP approval, if not specifically mentioned in the abatement specification, shall be included in the HMAC's scope of work. Formal approval of the AWP has not yet been received.

B. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 and CTDPH Asbestos-Containing Materials in schools regulations 19a-333-1 through 19a-333-13 must be requested in writing and must be approved in writing by CTDPH.

C. Any deviations from these specifications require the written approval and authorization from the Owner and Consultant.

1.10 RE-OCCUPANCY CLEARANCE

A. Re-occupancy air sampling will be required within all interior work areas.

B. The Owner shall be responsible for payment of the sampling and analysis of initial final air clearance samples only. The HMAC shall be responsible for payment of all costs associated with the collection and analysis of additional final air clearance samples for areas that failed the initial test. This shall also include the laboratory charges for preparation of slides for samples that are "overloaded" and become unreadable.

C. Phase Contrast Microscopy (PCM) air samples will be analyzed by the Owner's Consultant. Transmission Electron Microscopy (TEM) air samples will be analyzed by an outside laboratory on a twenty-four (24) hour turn-around time.

1.11 CONTROL OVER REMOVAL WORK

A. All HMAC work procedures shall be monitored by the HMAC's "Competent Person" to ensure that areas outside the designated work locations do not become contaminated. The following controls shall be implemented each working day to help ensure this:

B. Prior to work on any given day, the HMAC's designated "Competent Person" shall evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the building or

the employees. This includes a visual survey of the work area and the decontamination enclosure systems.

C. The HMAC shall maintain control of and be responsible for access to all work areas to ensure the following requirements:

1. Nonessential personnel are prohibited from entering the area;
2. All authorized personnel entering the work area shall sign the work area entry log;
3. All authorized personnel entering the work area shall read the "worker protection procedures" which are posted at the entry points to the enclosure system, and shall be equipped with properly fitted respirators and protective clothing;
4. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated;
5. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos waste leaving the enclosure system must be transported off site or immediately placed in locked, posted temporary storage on site, and be removed within 24 hours of the project conclusion.
6. Any material, equipment, or supplies that are brought out of the decontamination enclosure system shall be cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

1.12 SITE SECURITY

A. The HMAC shall be responsible for the security of regulated areas. Post asbestos abatement warning signs at entrances to the work area including the waste load out and worker decontamination chamber. The HMAC shall have a supervisor monitoring the entrance of the worker decontamination chamber during abatement work.

B. The supervisor shall maintain a work area access log for each work area. The access log shall document each person that enters the work area, the time entered and the time exited. Copies of the work area access logs shall be provided to the Owner’s Consultant during the course of the project.

1.13 PERSONNEL PROTECTION

A. Prior to commencing work, instruct all workers in all aspects of personnel protection, work procedures, emergency procedures use of equipment including procedures unique to this project.

B. Respiratory protection shall meet the requirements of OSHA as required in 29 CFR 1910.134,29 CFR 1926.11,29 CFR 1926.62 and the requirements of the CTDPH Standards for Asbestos Abatement (19a-332a-1 through 16) A formal respiratory protection program must be implemented in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The HMAC shall conduct exposure assessment air sampling, analysis and reporting to ensure the workers are using appropriate respiratory protection.

C. The HMAC shall provide appropriate respiratory protection for each worker and ensure usage during potential asbestos exposure.

D. The HMAC shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part II.

E. The HMAC shall provide an adequate supply of filter for respirators in use.

F. Minimum respiratory protection shall be as follows:

Air borne Asbestos Level:	Required Respirator:
Not in excess of 1 f/cc (10 x PEL)	Half mask air purifying or otherwise as required respirator other than a disposable respirator, equipped with HEPA P 100 filters.
Not in excess of 5 f/cc (50 x PEL)	Full facepiece air purifying respirator equipped with HEPA P 100 filters.
Not in excess of 10 f/cc (100 x PEL)	Any powered air purifying respirator equipped with HEPA P 100 filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator unknown operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Notes:
Respirators assigned for higher airborne fiber concentrations may be used at lower concentrations.
A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

G. In addition to the selection criteria in paragraph 1.13F, the HMAC shall provide a tight-fitting powered air purifying respirator equipped with high efficiency filters or a full facepiece supplied air respirator operated in the pressure demand mode equipped with HEPA egress cartridges or an auxiliary positive pressure self- contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a negative exposure assessment has not been produced and the exposure assessment indicates the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions if the exposure assessment indicates exposure levels above 1 f/cc as an 8 hour time weighted average.

H. If compresses air is used for supplied air respirators, this air will meet the requirements for grade D breathing air as described by the Compresses Gas association commodity Specification G-7.1-1966. The compressor will be equipped with the necessary safety devices and sorbends/filters, and be situated to avoid entry of contaminated air. In addition, the compressor will be equipped with alarms to indicate failure or overheating, and additional alarms for indicating the presence of carbon monoxide. Air line couplings will be incompatible with outlets for other gas system to prevent inadvertent servicing of air line respirators with non-respirable gases.

I. The HMAC shall provide and require all workers to wear protective clothing in Work Areas where asbestos fiber concentration exceeds permissible limits established by the OSHA or where contamination exists. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings.

J. The HMAC shall ensure that all authorized persons entering contaminated areas are equipped with proper respirators and protective clothing.

1.14 WORKER PROTECTION PROCEDURES

A. The HMAC shall monitor airborne asbestos concentrations in the workers' breathing zone to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001 and 1926.1001.

B. The HMAC's air sampling professional shall document all air sampling results and provide all air sampling reports as soon as feasible. OSHA air monitoring results shall be posted at a conspicuous location at the job site.

C. All personnel air sampling shall be conducted in accordance with methods described in OSHA standards 29 CFR 1910.1001 and 1926.1101.

1.15 SUBMITTALS

A. The HMAC will submit two (2) copies of the following submittals to the Owner's Consultant ten (10) calendar days prior to the commencement of removal work:

1. HMAC's construction schedule
2. Shop drawings showing work area configuration with decontamination facility and negative air exhaust locations
3. Waste generator label to be used
4. Waste shipment and disposal form to be used with generated information.
5. Waste hauling contractor
6. Asbestos abatement training, licenses and medical records of each employee who may be on the project site
7. The qualifications of the hygiene firm that the HMAC proposes to use for this project to analyze HMAC employee OSHA monitoring samples and final visual inspections and reoccupancy air sampling
8. Copies of all notifications and permits
9. Copies of the written respirator plan compliant with the most current issue of OSHA 1910.134
10. Copies of all SDS sheets for materials to be used on site
11. Work Site Safety Plan
12. Negative Exposure Assessment
13. HMAC's State of Connecticut Asbestos Contractor license
14. State Notification

B. The HMAC will submit the following to the Consultant during the work:

1. Results of all personal air sampling
2. Certificate, training, medical, and fit-test records for new employees to start work (24 hours in advance of work).
3. Signed copy of the Certificate of Workers Acknowledgment found at the end of this section for each worker who will be at job site.
4. HMAC site logs and containment access logs
5. Revised Notification, if any.

C. The following shall be submitted to the Consultant at the completion of work:

1. Completed copies of Waste Shipment Records (WSR).
2. Remaining personal air sampling results and site logs.

D. The HMAC's final payment shall be withheld until receipt of all of the documents

1.16 DEFINITIONS

A. ABATEMENT - Procedures to control fiber release from asbestos-containing materials; includes removal, encapsulation, and enclosure.

B. AIRLOCK - A system for permitting ingress and egress while assuring air movement to a contaminated area from an uncontaminated area. Two curtained doorways spaced a minimum of six feet apart can form an airlock.

C. AIR MONITORING - The process of measuring the fiber concentration of an area or of a person.

D. AIR SAMPLING PROFESSIONAL – A licensed professional capable of developing air sampling protocols and conducting air monitoring and analysis. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with 29 CFR 1910.1001 and 1926.1101.

E. ADEQUATELY WETTED - means sufficiently mixed or coated with water, amended or an aqueous solution; or the use of removal encapsulant to prevent dust emissions.

F. AMENDED WATER - Water to which a surfactant has been added.

G. ASBESTOS - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms that have been chemically altered.

H. ASBESTOS ABATEMENT - Means the removal, encapsulation, enclosure, renovation, or repair of asbestos-containing materials except activities that are related to the removal or repair of asbestos cement pipe and are performed by employees of a water company as defined in Section 25-32a of the Connecticut General Statutes.

I. ASBESTOS ABATEMENT SITE SUPERVISOR - Means any licensed individual who is employed or engaged by an HMAC to supervise an asbestos abatement project.

J. ASBESTOS ABATEMENT WORKER - Means any employee of an HMAC who engages in asbestos abatement.

K. ASBESTOS CONSULTANT - Any person who engages in any activity directly involved with asbestos consultation services and who has been issued a certificate by the commissioner and a license by the department.

L. ASBESTOS CONTAINING MATERIAL (ACM) - A material composed of asbestos of any type and in an amount greater than one percent be weight, either alone or mixed with other fibrous or nonfibrous material.

M. ASBESTOS CONTRACTOR - Any person or entity engaged in asbestos abatement whose employees actually perform asbestos abatement work.

N. ASBESTOS CONTROL AREA - An area where asbestos abatement operations are performed which is isolated by physical boundaries to prevent the spread of asbestos dust, fibers, or debris.

O. ASBESTOS FIBERS - Those particles with a length greater than five (5) microns and a length to diameter ratio of 3: 1 or greater.

P. ASBESTOS PERMISSIBLE EXPOSURE LIMIT (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The current level established by OSHA is 0.1 fibers per cubic centimeter of air as an eight (8) hour time weighted average and 1.0 fibers/cc averaged over a sampling period of 30 minutes as an excursion limit. The HMAC is responsible for maintaining work areas in a manner that this standard is not exceeded.

Q. ASBESTOS PROJECT MONITOR - The licensed asbestos consultant who is certified as a project monitor and who functions as an on-site representative of the facility Owner or other persons by over-seeing the activities of the asbestos abatement contractor.

R. AUTHORIZED VISITOR - Any person authorized by the Owner to enter the building.

S. BUILDING OWNER - For this Contract only, the building Owner is the Town of North Stonington.

T. CLEAN ROOM - An uncontaminated area or room, which is a part of the workers' decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.

U. CLEARANCE SAMPLING - Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Five (5) air samples collected by the asbestos abatement project monitor inside the work area, and having a fiber concentration of less than 0.010 fibers/cc of air will denote acceptable clearance sampling by Phase Contrast Microscopy. Five air samples collected by the asbestos abatement project monitor having an average asbestos concentration of less than 70 asbestos structures mm/sq. will denote acceptable clearance sampling for Transmission Electron Microscopy.

V. COMMISSIONER - Means the Commissioner of the Connecticut Department of Health Services or his/her authorized agent.

W. COMPETENT PERSON - A representative of the HMAC who is capable of identifying an asbestos hazard and who has the authority to take prompt corrective measures to eliminate the hazard during asbestos removal.

X. CONFINED SPACE - A work zone where access and egress are restricted, a potential for gaseous vapors to accumulate exist, or a potential for low oxygen content exists.

Y. DECONTAMINATION ENCLOSURE SYSTEM - A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.

Z. DEPARTMENT - The Department of Public Health.

AA. EPA - Means the U.S. Environmental Protection Agency.

BB. ENCAPSULANT - A liquid material that can be applied to asbestos-containing material that controls the possible release of asbestos fibers from the materials by either creating a membrane over the surface (bridging encapsulant) or penetrating the material and binding its components together (penetrating encapsulant).

CC. ENCAPSULATION - A specified asbestos remediation strategy involving the application of an encapsulant to asbestos containing materials to control the release of asbestos fibers into the air.

DD. EQUIPMENT DECONTAMINATION ENCLOSURE - That portion of a decontamination enclosure system designed for controlling the transfer of materials and equipment, typically consisting of a washroom and a holding area.

EE. EQUIPMENT ROOM - A contaminated area or a room, which is part of the workers' decontamination enclosure with, provisions for storage of contaminated clothing and equipment.

FF. FACILITY - Means any private or public building or structure including but not limited to those used for institutional, residential (including single family homes), commercial or industrial purposes and vessels while ashore or in dry-dock.

GG. FIXED OBJECT - A unit of equipment or furniture in the work areas which cannot be removed from the work area.

HH. FRIABLE ASBESTOS MATERIAL - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.

II. GLOVE BAG - An impervious plastic bag-like enclosure affixed around asbestos containing material, with glove-like appendages through which materials and tools may be handled.

JJ. HAZARDOUS MATERIALS ABATEMENT CONTRACTOR (HMAC) - Means the Asbestos Contractor, Lead Based Paint Abatement Contractor and or PCB/DEHP and Mercury Vapor Lighting Removal Contractor.

KK. HEPA FILTER - A high efficiency particulate air (HEPA) filter in compliance with ANSI Z9.2-1979.

LL. HEPA VACUUM EQUIPMENT - Vacuum equipment with a HEPA filter system for filtering the effluent air from the unit.

MM. HOLDING AREA - An air-locked chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

NN. INSPECTOR (ASBESTOS ABATEMENT PROJECT MONITOR)- An individual, retained by the Building Owner, who is a "qualified asbestos abatement project monitor" as defined by the State of Connecticut Department of Public Health, and who will be responsible for monitoring the HMAC during the asbestos abatement project.

OO. MOVABLE OBJECT - A unit of equipment or furniture in the work area, which can be removed from the work area.

PP. NEGATIVE AIR FILTRATION EQUIPMENT - A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.

QQ. OWNER'S CONSULTANT -The Asbestos Consultant for the project.

RR. NESHAPS - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.

SS. PLASTICIZE - To cover floors and walls with plastic sheeting as specified herein.

TT. SEPARATION BARRIER - A rigid barrier sealed with two (2) layers of six (6) mil polyethylene sheeting installed between an occupied area and the asbestos abatement work area.

UU. SHOWER ROOM - A room between the clean room and the equipment room in the workers' decontamination enclosure with hot/cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.

VV. STRIPPING - Removing asbestos materials from any structural member, pipe surface, HVAC, or other equipment.

WW. WASHROOM - A room between the work area and the holding area in the equipment decontamination enclosure with provisions for storage of contaminated clothing and equipment.

XX. WET CLEANING - The process of reducing asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools, which have been dampened by amended water, and by then disposing of these cleaning items as asbestos contaminated waste.

YY. WORK AREA - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are occurring and which may become contaminated as a result of such abatement actions. The work area must be totally self-contained by sealing, plasticizing and equipping the area with a decontamination enclosure system.

ZZ. WORKER DECONTAMINATION ENCLOSURE SYSTEM - That portion of a decontamination enclosure system designated for controlled passage of workers, other personnel, and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

AAA. WORK STOPPAGE CLEANUP PROCEDURE - A process following the issuance of a written stop work order, whereby the HMAC thoroughly cleans and decontaminates the work area, the decontamination enclosure system, and any other areas of the building affected by the removal project, to the satisfaction of the Asbestos Project Monitor.

BBB. WORK ZONE - The area of the decontamination enclosure system where asbestos is being removed.

1.17 PRECONSTRUCTION MEETING

A. The HMAC shall be required to attend a preconstruction meeting with his site supervisor, project manager and any subcontractor they will employ on site for the purpose of reviewing the contract requirements.

PART 2 - MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 4 or 6 mil.

D. Polyethylene disposable bags shall be true six (6) mil with preprinted labels.

E. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Surfactant (wetting agent) - shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce surfactant to five (5) gallons of water or as directed by manufacturer.

G. Impermeable containers are to be used to receive and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA Standard 29 CFR 1926-1101.) Containers must be both air and watertight.

H. Labels and signs, as required by OSHA Standard 29 CFR 1926.1001 will be used.

I. Encapsulant shall be bridging or penetrating type which has been found acceptable to Eagle Environmental. Usage shall be in accordance with manufacturer's printed technical data.

J. Disposal labels shall be preprinted on self-adhesive labels with the generator name, abatement site and HMAC's name and address. Labels shall not be photocopied and applied with spray adhesive.

2.2 TOOLS AND EQUIPMENT

A. Provide suitable tools for asbestos removal, encapsulation and enclosure.

B. The HMAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The HMAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The HMAC shall provide temporary electrical power sources such as generators (when required).

E. The HMAC shall have available shower stalls and sufficient hose length and a drain system equipped with 5-micron filters.

F. Exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of 0.02 inches of water within the enclosure with respect to the outside area. Equipment shall be checked for proper operation by smoke tubes or a differential pressure gauge before the start of each shift and at least twice during the shift. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside.

G. Vacuum units, of suitable size and capacities for project, shall have HEPA filter(s) capable of tSIPping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

H. The HMAC will have reserve exhaust air filtration system units in order to maintain negative air filtration in the event that a unit malfunctions during use.

I. The HMAC shall have available and use recording manometers to monitor pressure differential between the work area and occupied areas of the building. A minimum negative pressure differential of 0.02 inches of water column shall be maintained.

J. The HMAC shall have available spray equipment capable of mixing a wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.

K. HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

PART 3 - EXECUTION

3.1 INTERIOR WORK AREA PREPARATION - GENERAL

A. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.

B. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s). Under no circumstances during the abatement and demolition procedures will lighting fixtures be permitted to be energized.

C. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

D. Construct temporary rigid barrier within interior spaces of the building to isolate the abatement area from general construction areas in the school. No work area preparation shall be permitted until the temporary barriers are fully installed. Personnel decontamination systems shall be established on the work area side of the temporary rigid barrier.

E. Install a double layer of six-mil polyethylene sheeting on the work area side of the temporary wall. The polyethylene sheeting shall be sealed to create an air tight barrier between the work area and occupied portions of the building. Create an access door trough the temporary barrier and polyethylene sheeting.

F. Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. This includes doorways and corridors which will not be used for passage during work areas and occupied areas. Install 5 micron water filtration socks in all floor drains prior to sealing.

G. Where friable asbestos containing materials are present, establish worker decontamination facility, critical barriers and negative air filtration prior to conducting pre-cleaning activities. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with minimum six (6) mil plastic sheeting sealed with duct tape.

H. Pre-clean movable objects within the work areas, using HEPA vacuum equipment and wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

I. After HEPA vacuum pre-cleaning, conduct work area preparation in accordance with this Specification section.

J. Where fixed walls are not used, one layer of six (6) mil polyethylene sheeting will be applied to a rigid framework of wood, metal, or PVC.

K. Install two layers of four (4) mil polyethylene wall sheeting over all wall surfaces and critical barrier (where wall materials are not being removed as ACM). All overlaps shall be sealed with tape or spray adhesive.

L. Cover all floors in the work area with two layers of six (6)-mil polyethylene sheeting (where flooring materials are not being removed as ACM). Extend the polyethylene flooring a minimum of twelve (12) inches up the walls. Ensure that the wall sheeting overlaps the floor sheeting from the top.

M. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.

N. Create pressure differential between work areas and occupied areas by the use of acceptable negative air pressure equipment. The HMAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.

O. Install and maintain a manometer for each negative pressure enclosure where Class I work will be performed.

P. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

Q. Prepare and modify work area preparation in accordance with approved Alternative Work Practices where applicable.

3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM

A. The HMAC shall establish contiguous to each work area, where feasible, a personnel decontamination system consisting of equipment room, shower room and clean room in series. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers shall be new and a metal shower surround shall be required for this project.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two 5 micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

E. Each personnel decontamination system shall include a work area access log posted on the entrance to the system. All personnel authorized to enter the work area shall sign the work area access log upon entrance and existing.

3.3 REMOTE PERSONNEL DECONTAMINATION SYSTEM

A. The HMAC shall establish a remote personnel decontamination system where contiguous decontamination systems are not feasible. The use of such remote decontamination unit must be indicated in the State Notification. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers shall be new and a metal shower surround shall be required for this project.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two 5 micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

E. When a remote personnel decontamination system will be utilized, a minimum of two (2) chambers shall be constructed contiguous to each containment and be equipped with a HEPA vacuum and clean protective clothing.

F. Each personnel decontamination system shall include a work area access log posted on the entrance to the system. All personnel authorized to enter the work area shall sign the work area access log upon entrance and existing.

3.4 WASTE LOAD OUT SYSTEMS

A. The HMAC shall establish waste load out systems, where feasible, attached to the work areas. Waste load out systems shall consist of a minimum of two (2) chambers that are of suitable size for transporting waste out of the work area. Waste load out systems shall be constructed of two layers of six-mil polyethylene sheeting.

B. Access between rooms in the waste load out system shall be through double flap-curtained openings. The waste load out system shall be used for decontaminating waste containers, bags, bundles, etc. prior to removal from the work area and transporting waste from the work area to the non-work area.

C. Persons working inside the contaminated work area are not permitted to pass from the work area to the non-work area through the waste load out system. Persons inside the contaminated work area shall not be permitted to enter into the clean area of the waste load out system.

D. The waste load out system shall remain sealed at all times except during decontamination of waste containers and transport of waste from the work area to the non-work area.

3.5 EXTERIOR WORK AREA PREPARATION – NON-FRIABLE ASBESTOS CONTAINING MATERIALS

A. Where exterior non-friable ACM is to be removed outdoors, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

B. All exterior work areas shall be demarcated with orange construction fence. The exterior work areas shall be entered and exited through one (1) designated area only. A work area access log shall be maintained at the entrance to each regulated work area.

C. Install double six (6) mil drop cloths extending a minimum of ten (10) feet from the exterior wall of the building. Extend polyethylene sheeting outward from the base of the structure in order to collect debris when working from higher elevations. Install single six (6) mil critical barriers over any louver, vent or penetration into the building interior within or directly adjacent to the regulated area.

D. Install vertical shrouds between work area and non-work area extending a minimum of ten (10) feet out from the building. Vertical shrouds shall extend the full height of the exterior work area.

E. Maintain an operable remote worker decontamination chamber during exterior abatement work.

F. Maintain a work area access log at each exterior regulated work area. Access into the regulated area shall be established at a designated location.

3.6 ASBESTOS REMOVAL PROCEDURE - GENERAL

A. The HMAC shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout the project. At a minimum, the HMAC Competent Person shall perform or supervise the following duties, as applicable:

1. Ensure the integrity of the containment or enclosure.
2. Set up procedures to control entry to and exit from the enclosure.
3. Supervise employee exposure monitoring.
4. Ensure that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with OSHA regulations.
5. Ensure that employees use the worker decontamination facilities and observe decontamination procedures.

B. Abatement work will not commence until all work area preparation is completed in accordance with this technical specification section.

C. Spray asbestos materials with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation. The Owner’s Consultant will preapprove use of amended water as the wetting agent.

D. Spraying of amended water shall be adequate enough to allow the ACM to absorb the water. Actual removal of ACM shall not be allowed until all ACM has become adequately wet.

E. Do not create any visible emissions during asbestos removal. Ensure all ACM is adequately wet prior to removal.

F. Fill disposal containers as removal proceeds, seal filled containers before moving to waste load out system. Wet clean each container thoroughly, double bag, drum or use other approved containerization methods and apply a caution label before moving to holding area.

G. Remove and containerize all visible accumulations of asbestos containing and/or asbestos- contaminated debris.

H. Solidify all liquid waste prior to containerization for disposal.

I. Sealed disposal containers and all equipment used in the work area shall be included in the cleanup and shall be removed from work areas, via the waste load out system at an appropriate time in the cleaning sequence.

J. At any time during asbestos removal, should the competent person suspect contamination of areas outside the work area(s), they shall cause to stop all abatement work until steps to decontaminate these areas and eliminate causes of such contamination are completed. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.

K. Upon acceptance of the work area by the Owner's Consultant, the HMAC shall apply an even coating of bridging encapsulant with airless spray equipment to all exposed surfaces contained within the work area. Apply encapsulant in accordance with manufacturer's recommendation.

3.7 WASTE PACKAGING AND REMOVAL PROCEDURES

A. The HMAC shall strictly adhere to the requirements of this section for ACM waste packaging and transporting waste from the work area enclosure to the disposal dumpster.

B. Waste disposal bags and drums shall be affixed with pre-printed OSHA warning labels, DOT labels and NESHAP labels.

C. Each container of ACM waste shall be made adequately wet prior to sealing the container. Bags shall be sealed immediately following additional wetting procedures. Bags of ACM waste shall not be permitted to remain unsealed while in the work area enclosure.

D. Large window components and sashes shall be wrapped with a minimum of two (2) layers of six-mil polyethylene sheeting and properly labeled.

E. Each bag of ACM waste shall be double-bagged during waste load out procedures. The following waste load out procedure shall be strictly adhered to:

1. Wet wipe inner bag or drum to remove all ACM contamination. Ensure the inner bag is sealed.
2. Transport bag or drum to the equipment room located in the worker decontamination enclosure.
3. One worker, equipped with personal protective equipment, shall be inside the clean room of the worker decontamination enclosure.
4. The worker in the clean room of the decontamination enclosure shall open a six-mil disposal bag and hold it open inside the shower room where the inner bag containing the ACM waste shall be placed.
5. The outer bag shall be sealed with duct tape inside the shower room.
6. The double bagged or drummed waste shall be removed from the decontamination enclosure and waste generator labels shall be immediately affixed to the outer bag or drum.
7. Waste generator labels shall be printed self-adhering labels and shall contain the Owner's name, the site location address, and the HMAC's name.

8. The properly labeled waste shall be transported directly to the lined waste container.
9. The waste container shall be double lined with 6-mil polyethylene sheeting.
10. OSHA warning signs shall be secured to the waste container prior to any loading and unloading operations.
11. The waste container shall be kept locked at all times other than loading and unloading

3.8 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – INTERIOR/EXTERIOR WINDOW GLAZING COMPOUND AND CEMENT BOARD PANELS

A. Window system abatement shall be performed following all interior asbestos abatement and PCB Remediation activities and re-occupancy air testing unless intact non-disturbance removal can be accomplished.

B. Coordinate window removal with CM to facilitate securing building at the end of each work shift.

C. Window sashes, caulk and cement board also contain PCBs. Refer to Section 028400 PCB Remediation for additional requirements.

D. If glazing compound and cement board panels will remain intact, the HMAC may remove entire window, sash and panel as a non-disturbance activity following CTDPH guidelines for intact removal of non-friable ACM. Exterior caulk removal shall be completed prior to the start of window sash or cement board panel removal.

E. If window sashes or cement board panels cannot be removed intact, the sashes and cement board panels shall be removed as follows:

1. Prepare the work area in accordance with Section 3.1 - INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM. Critical barriers and two layers of polyethylene shall be placed on the outside of the window system.
2. The HMAC shall continuously mist the non-friable glazing compound and panel with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow wetting agent to run off to other areas. If removal encapsulant is used, use in strict accordance with the manufacturer's instructions.
3. Remove panels, glass and glazing compound with hand tools.
4. Utilize HEPA vacuum with appropriate attachments to clean work area following window and panel removal.
5. Remove all panels and glazing compound so no visible residue remains.
6. Utilize HEPA vacuum and wet methods to clean work area following window removal.
7. Remove all window frames, sashes, panels, fasteners and brackets. Avoid damage to surfaces that are to remain.
8. The HMAC is responsible for reducing the waste to appropriate size as required by landfill.

F. Wrap all waste in a minimum of two (2) layers of six-mil polyethylene sheeting and apply appropriate waste labels prior to relocating to appropriate waste container.

G. Remove polyethylene drop cloths and dispose of as asbestos and PCB bulk product waste. Clean entire ground under polyethylene sheeting so no visible debris is present.

3.9 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – THERMAL SYSTEM INSULATION/MUDDED FITTING CEMENT (>3 LF/SF PER ROOM)

A. Minimum specific requirements relative to the removal of thermal system insulation are as follows.

1. Prior to the removal of any thermal system insulation, the HMAC shall ensure the work area is prepped in accordance with the requirements of Section 3.1 INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM.
2. Utilizing an airless sprayer, the HMAC shall adequately wet all thermal system insulation but may not begin removal until material is adequately wet and approval is issued by Project Monitor.
3. Where necessary, perform selective demolition to access thermal systems insulation.
4. Large pieces of thermal system insulation shall be reduced to manageable sections prior to packaging for disposal.
5. The HMAC shall provide demolition and disposal of ceilings to allow access for removal of pipe insulation/mudded fitting cement.
6. The HMAC shall cut banding, remove thermal systems insulation in sections and package for disposal. Ensure material is adequately wet prior to sealing disposal bag.
7. Dispose of fiberglass pipe insulation as asbestos-contaminated waste.
8. Remove all visible residue from pipes and fittings using nylon scrub pads. Wire brushes are prohibited.
9. Clean all lengths of pipes, fittings, hangars, saddles, supports, threads until they are free of visible residue.
10. HEPA vacuum all penetrations where pipes enter/exit walls, ceilings, floors.
11. Utilize HEPA vacuum and wet methods to clean work area following removal.

B. An AWP has been submitted for approval for the removal of residual thermal systems insulation and contaminated soil from the tunnels utilizing the following procedures. The procedures outlined in the AWP approval, if not specifically mentioned below, shall be included in the HMAC's scope of work.

1. Prior to the removal of any thermal system insulation, the HMAC shall ensure the work area is prepped in accordance with the requirements of Section 3.1 INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM but floor and wall surfaces need not be covered as required by 19a-332a-5(e).
2. Utilizing an airless sprayer, the HMAC shall adequately wet all thermal system insulation and soil floor.
3. Where necessary, perform selective demolition to access thermal systems insulation in walls.
4. Remove all fiberglass insulation from pipes within tunnel and clean all piping.
5. Remove all visible residue from pipes and fittings using nylon scrub pads. Wire brushes are prohibited.
6. Clean all lengths of pipes, fittings, hangars, saddles, supports, threads until they are free of visible residue.
7. Utilizing an airless sprayer, the HMAC shall adequately wet the soil.
8. Excavate soil as necessary to remove all suspect visible TSI debris.
9. HEPA vacuum all penetrations where pipes enter/exit walls, ceilings, floors.
10. Utilize HEPA vacuum with appropriate attachments and wet wiping techniques to clean all surfaces in work area including walls, ceilings, and floors following removal.

3.10 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – JOINT COMPOUND ON SHEETROCK

A. Minimum specific requirements relative to the removal of joint compound/sheetrock are as follows.

1. Prior to the removal of any AC joint compound/sheetrock, the HMAC shall ensure the work area is prepped in accordance with the requirements of Section 3.1 INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM.
2. Utilizing an airless sprayer, the HMAC shall adequately wet all AC joint compound/sheetrock but may not begin removal until material is adequately wet and approval is issued by Project Monitor.

3. Install additional critical barriers as necessary as wall demolition continues. Clean surfaces prior to installation of critical barrier.
4. Large pieces of sheetrock shall be reduced to manageable sections prior to packaging for disposal.
5. Dispose of AC joint compound/sheetrock as asbestos-contaminated waste.
6. Remove all fasteners and clean visible residue using nylon scrub pads. Wire brushes are prohibited.
7. HEPA vacuum all penetrations, wall studs, electrical boxes, etc. within work area.
8. Utilize HEPA vacuum with appropriate attachments and wet wiping techniques to clean all surfaces in work area including walls, ceilings, and floors following removal.

3.11 SPECIFIC REQUIREMENTS – SPOT REMOVAL GLOVEBAG (<3 LF/SF)

A. Where less than three (3) linear/square feet of ACM is to be removed by glovebag operation, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

B. Provide GFCI devices and temporary power installed in compliance with the applicable electrical codes.

C. Pre-clean soil, floor and adjacent surfaces that may be contaminated with ACM, using HEPA vacuum equipment or shovels as appropriate. Where friable asbestos containing materials are present, establish worker decontamination facility, critical barriers and negative air filtration prior to conducting pre-cleaning activities.

D. Install one layer of six (6) mil polyethylene sheeting on the ground below the work inside the containment walls. All overlaps shall be sealed with tape or spray adhesive. Extend the polyethylene flooring a minimum of twelve (12) inches up the walls. Ensure that the wall sheeting overlaps the floor sheeting from the top.

E. Install six (6) mil glovebag in accordance with OSHA 1926.1101.

F. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

G. The HMAC shall ensure that the following work practice requirements are met:

1. Glove bags shall be installed so as to form an airtight covering over the structure to which they are applied. Any friable ACM in the immediate area of glove bag attachment shall be wrapped and sealed in two layers of six mil plastic sheeting or otherwise rendered intact prior to glovebag installation. All openings in the glove bag shall be sealed against leakage with duct tape or equivalent material.
2. ACM shall be wet with Amended Water prior to its removal and maintained in a wet condition inside the glovebag.
3. Any ACM that has been exposed as result of the glove bag operation shall be suitably encapsulated or enclosed so as to prevent the leakage of asbestos fibers prior to the removal of the glovebag.
4. All surfaces from which ACM has been removed inside the glovebag and the upper portions of the glovebag itself shall be cleaned free of visible debris prior to removal of the glovebag.
5. Debris shall be isolated in the bottom of the glove bag by twisting the bag so as to form a closure in the middle. This closure shall then be taped around with duct tape or equivalent material. Air in the glovebag shall be exhausted with a HEPA vacuum cleaner prior to its removal.

3.12 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – INTERIOR CAULKS AND ADHESIVES

A. Minimum specific requirements relative to the removal of interior caulks and adhesives are as follows:

1. Prepare the work area in accordance with Section 3.1 - INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM prior to the removal of any window frame or wall component at caulks or mirrors, chalk boards and tack boards with AC adhesives.
2. The HMAC shall continuously mist the non-friable caulk and adhesive with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow wetting agent to run off to other areas. If removal encapsulant is used, use in strict accordance with the manufacturer's instructions.
3. Remove caulk, adhesive and contaminated substrate with hand tools.
4. Dispose of tack board, chalk board or mirror that cannot be cleaned of all residual adhesive as contaminated asbestos waste.
5. Utilize HEPA vacuum with appropriate attachments and wet methods to clean work area following removal.
6. Remove caulk or adhesive so no visible residue remains or demo and dispose of contaminated substrate.

B. Utilize HEPA vacuum and wet methods to clean work area following removal.

C. The HMAC is responsible for reducing the waste to appropriate size as required by landfill.

D. Wrap all waste in a minimum of two (2) layers of six-mil polyethylene sheeting prior and apply appropriate waste labels prior to relocating to appropriate waste container.

3.13 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – COATED SINKS AND COMPOSITE COUNTERTOPS AND BACKSPLASHES

A. If AC materials will remain intact, the HMAC may remove entire component as a non-disturbance activity following CTDPH guideline for intact removal of non-friable ACM.

B. Perform all plumbing and mechanical disconnects prior to removal of sink and countertops.

C. The adhesive attaching the sinks to the composite countertops has been determined to be asbestos containing. If the sinks will become detached from the composite countertop during removal, full containment procedures must be utilized.

D. If AC materials cannot be removed intact, the sink coating and countertop/backsplash shall be removed as follows:

1. Prepare the work area in accordance with Section 3.1 - INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM.
2. The HMAC shall continuously mist the non-friable materials with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow wetting agent to run off to other areas. If removal encapsulant is used, use in strict accordance with the manufacturer's instructions.
3. Remove AC material or contaminated substrate with hand tools.
4. Utilize HEPA vacuum with appropriate attachments to clean work area following removal.

5. Remove caulk or adhesive compound so no visible residue remains or demo and dispose of contaminated substrate.
6. Utilize HEPA vacuum and wet methods to clean work area following removal.

E. The HMAC is responsible for reducing the waste to appropriate size as required by landfill.

F. Wrap all waste in a minimum of two (2) layers of six-mil polyethylene sheeting and apply appropriate waste labels prior to relocating to appropriate waste container.

3.14 MINIMUM SPECIFIC WORK AREA PREPARATION REQUIREMENTS – VALVE PACKING AND VALVE GASKETS

A. A. Minimum specific requirements relative to the removal of the valve packing and valve gaskets are as follows.

1. If valve packing and valve gaskets will remain intact, the HMAC may remove entire component as a non-disturbance activity following CTDPH guideline for intact removal of non-friable ACM following all plumbing and mechanical disconnects.

2. If valves and gaskets cannot be removed intact, the materials shall be removed as follows:
   a) Prepare the work area in accordance with Section 3.1 - INTERIOR WORK AREA PREPARATION – GENERAL and 3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM.
   b) The HMAC shall continuously mist the packing and gaskets with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow wetting agent to run off to other areas. If removal encapsulant is used, use in strict accordance with the manufacturer's instructions.
   c) Remove the packing and gaskets. Utilize hand tools and nylon scrub pads to remove all residual material from metal components.
   d) Utilize HEPA vacuum with appropriate attachments and wet wiping techniques to clean all surfaces in work area including walls, ceilings, and floors following removal

3.15 MINIMUM SPECIFIC WORK AREA PREPARATION REQUIREMENTS – NON-FRIABLE EXTERIOR CAULK AND ROOF TAR

A. Where non-friable ACM is to be removed outdoors, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

B. Pre-clean soil and exterior surfaces contaminated with ACM, using HEPA vacuum equipment or shovels as appropriate.

C. Install single six (6) mil drop cloths extending a minimum of ten (10) feet from the base of the building. Extend polyethylene sheeting outward from the base of the structure in order to collect debris when working from higher elevations. Install single six (6) mil critical barriers over any window, door, vent or penetration into the building interior within or directly adjacent to the regulated area.

D. Establish a remote worker decontamination in accordance with Section 3.3 – REMOTE PERSONNEL DECONTAMINATION SYSTEM.

E. The HMAC shall sufficiently wet AC materials with removal encapsulant, amended water, or a detergent solution.

F. Utilize hand tools to remove caulk and tar from all brick, concrete, Tectum roof decking and door/window casings or demo and dispose of contaminated building components. The HMAC shall be responsible for the removal of all caulk and sealants concealed behind or within window/door systems.

G. Collect debris in drop cloths and dispose of as asbestos containing waste.

H. Refer to Section 028400 PCB Remediation Plan for additional removal and disposal requirements.

3.16 FINAL CLEANING AND ENCAPSULATION

A. Upon completion of gross removal of all ACM specified for removal, the HMAC shall begin final cleaning of the effected work area. The HMAC shall HEPA vacuum and wet wipe all surfaces contained within the work area.

B. All tools or equipment that are not necessary for final cleaning shall be decontaminated or bagged and removed from the work area enclosure.

C. The HMAC shall begin final cleaning procedures at the furthest and highest most points from the personnel decontamination unit and move towards the unit. The HMAC shall ensure that all exposed building components and or surfaces are thoroughly HEPA vacuumed and wet wiped.

D. The HMAC shall HEPA vacuum and wet wipe any component specified to remain inside the work area enclosure.

E. The HMAC shall thoroughly wet wipe all polyethylene sheeting inside the work area enclosure.

F. Once all surfaces and components within the work area have been thoroughly cleaned, AND THE WORK AREA IS DRY, the HMAC's Competent Person shall perform a visual inspection of all surfaces and components within the work area enclosure. The HMAC's Competent Person shall sign off on the work area stating that all abatement has been completed for that portion of work and that the work area has met the no visible residue criteria.

G. The HMAC's Competent Person shall then request a final visual inspection to be performed by the Owner's Consultant. The Owner's Consultant shall visually inspect all surfaces and components in the work area for residual debris and or dust. Work areas must be dry for final visual inspection. Inspections will not be performed in work areas where there is standing water or wet surfaces. Additional cleaning shall be performed at the HMAC's expense if the Owner's Consultant identifies visual debris and/or dust during the visual inspection. Additional cleaning shall be performed until the work area meets the no visible residue/dust criteria.

H. Upon acceptance of the work area by the Owner's Consultant, the HMAC shall apply an even layer of bridging encapsulant to all surfaces contained within the work area. The Owner's Consultant shall verify the completeness of work area encapsulation.

3.17 EXTERIOR WORK AREAS FINAL CLEANING

A. Upon completion of gross removal of all ACM specified for removal, the HMAC shall begin final cleaning of the effected work area. The HMAC shall wet debris that has accumulated on the drop cloths. And shall roll up the drop cloths ensuring that all debris is contained within the polyethylene sheeting.

B. The HMAC shall HEPA vacuum and wet wipe surrounding surfaces contained within the work area.

C. The HMAC shall begin final cleaning procedures at the furthest and highest most points within the regulated work area. The HMAC shall ensure that all exposed building components and or surfaces contained within the work area are thoroughly HEPA vacuumed and wet wiped.

D. Exterior work areas shall not be deregulated until a final visual inspection has been performed by the Asbestos Supervisor and Asbestos Project Monitor.

3.18 DISPOSAL OF ASBESTOS AND ASBESTOS CONTAMINATED WASTE

A. All disposal of asbestos containing and or asbestos contaminated material must be in compliance with requirements of the DEEP, DPH and the USEPA NESHAP regulations.

B. Disposal approvals shall be obtained from the CTDEEP before commencing asbestos removal if waste will be disposed of in Connecticut.

C. Refer to Section 028400 PCB Remediation Action Plan for additional disposal requirements for materials that also contain PCBs.

D. Waste container storage locations shall be pre-approved by the Owner and Owner's Consultant.

E. A copy of approved disposal authorization shall be provided to the Owner and Owner's Consultant and any required federal, state or local agencies.

F. Copies of all landfill receipts will be retained by the Owner's Consultant as part of the project file. The receipts will be signed by the landfill operator on receipt, and the quantity of asbestos debris leaving the job site and arriving at the landfill acknowledged.

G. All asbestos debris shall be transported in covered, sealed vans, boxes or dumpsters, which are physically isolated from the driver by an airtight barrier. All vehicles must be properly licensed to meet United States Department of Transportation (USDOT) requirements.

H. Friable ACM waste shall be placed in double lined enclosed waste containers equipped with a lockable hasp. Waste containers shall be posted with OSHA warning signs during loading and unloading.

I. All liquid waste generated during the work shall be solidified. At no time will liquid wastes be permitted to be stored on site. Liquid waste generated during this project shall be solidified prior to the end of each work shift.

J. Completed Waste Shipment Records (WSR) signed by the landfill must be returned to the Owner or Owner's Consultant no later than 45 days from the time the waste was transported off-site. Completed waste shipment records that are not received by the Owner within 35 days shall require the HMAC to begin tracking the waste. The HMAC must notify the Owner of intentions on tracking the waste.

K. The HMAC must take appropriate actions as outlined in 40 CFR Part 61 NESHAP regulations when completed WSR are not forwarded to the Owner or Owner's Consultant within 45 days from the time the waste was transported off-site.

3.19 REOCCUPANCY AIR CLEARANCE MONITORING

A. After the presealant visual inspection has passed and all surfaces in the abatement area have dried, reoccupancy air clearance monitoring will be performed. The primary and secondary barriers, worker decontamination enclosure, and negative air filtration units shall remain in place. At no time shall tools, ladders, vacuums or waste remain inside the work area enclosure during final air clearance sampling.

B. Once the work area has dried, the Owner's Consultant shall collect aggressive reoccupancy air clearance samples. Aggressive air monitoring will be used. Selection of location and of samples shall be the responsibility of the Owner's Consultant. For air clearances by Phase Contrast Microscopy, air monitoring volumes shall be sufficient to provide a detection limit of 0.010 f/cc (fiber per cubic centimeter of air) using NIOSH-approved method. For air clearance by Transmission Electron Microscopy, air monitoring volumes shall be sufficient to provide a detection limit of 0.005 s/cc (structure per cubic centimeter of air) using the AHERA Level II Yamate Method.

C. Areas that do not comply with the reoccupancy air clearance criteria shall continue to be cleaned by and at the HMAC's expense until the specified reoccupancy air clearance criteria is achieved as evidenced by results of air testing as previously specified.

D. Laboratories conducting analysis of final air clearance samples shall be approved by the State of Connecticut Department of Public Health.

3.20 OWNER'S CONSULTANT'S RESPONSIBILITY

A. The Owner has retained the services of Eagle Environmental, Inc. to monitor this project. The Owner's Consultant shall collect and analyze air samples to ascertain the integrity of controls, which protect the building from asbestos contamination. Independently, the HMAC shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Owner's Consultant shall collect and analyze air samples during a minimum of three time periods:

1. Pre-Abatement Sampling Period: The Asbestos Abatement Project Monitor shall collect a sufficient number of air samples, inside and outside the proposed work area locations, to establish background air quality conditions. At least one sample will be taken outside of the building.
    a. Pre-Abatement air samples shall be collected for a minimum period of ninety minutes at a minimum flow rate of 12 liters per minute, or as required to obtain a volume of 1,000 liters. Samples shall be analyzed by phase contrast microscopy (PCM) using the NIOSH 7400 protocol.
2. Abatement Period: The Asbestos Abatement Project Monitor shall collect samples on a daily basis during the work period. A sufficient number of background samples shall be taken outside of the work area, at the exhaust of the negative pressure filtration equipment, and outside of the building to evaluate the degree of cleanliness or contamination of the building during asbestos removal. Additional samples may be taken inside the work area and decontamination enclosure system, at the discretion of the Asbestos Abatement Project Monitor.
    a. The Asbestos Abatement Project Monitor shall provide a continual evaluation of the air quality of the building during asbestos abatement, using his/her best professional judgments in respect to the State Department of Public Health guideline of 0.010 f/cc and the background air quality established during the pre-abatement period.
    b. If the Asbestos Abatement Project Monitor determines that the building air quality has become contaminated from the project, he/she shall immediately inform the HMAC to cease all removal operations and implement a work stoppage clean up procedure. The HMAC shall conduct a thorough cleanup of areas of the building designated by the Asbestos Abatement Project Monitor. No further asbestos abatement work shall take place until the Asbestos Abatement Project Monitor has determined that the building's air has been decontaminated.
    c. Abatement air samples shall be collected for a minimum period of ninety minutes at a minimum flow rate of 12 liters per minute, or as required to obtain a volume of 1,000 liters. Samples shall be analyzed by phase contrast microscopy (PCM) using the NIOSH 7400 protocol.

3. Elevated fiber counts: If elevated fiber counts exceeding the establish pre-abatement level or 0.01 f/cc are recorded, the cause for such elevated readings shall be investigated. If necessary, the HMAC shall be responsible for cleaning the affected area and will provide additional support to lower the air born fiber levels. All cost incurred by the HMAC for the decontamination work shall be borne by the HMAC.
4. Re-occupancy Clearance Period: The Asbestos Abatement Project Monitor shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion as established by the site supervisor and the Asbestos Abatement Project Monitor has been met.
    a. Transmission Electron Microscopy (TEM) - For work areas containing greater than 260 linear feet or 160 square feet of ACM, post abatement analysis of the samples to determine if re-occupancy clearance standards have been met shall be conducted by TEM. A minimum of five (5) samples shall be collected inside containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. An asbestos abatement project shall be considered complete when the average concentration of asbestos fibers of five air samples collected within the work area and analyzed by the TEM method in Appendix A of 40 CFR Part 763 subpart E is less than 70.0 structures per square millimeter (s/mm^2) of filter surface or is not statistically significantly different, as determined by the Z-test calculation found in Appendix A of 40 CFR Part 763, subpart E, from the average asbestos concentration of five air samples collected at the same time outside the work area and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in Appendix A of 40 CFR Part 763, subpart E, is below the filter background level, as defined in Appendix A of 40 CFR Part 763 subpart E, of 70 s/mm^2.
    b. Phase Contrast Microscopy (PCM) - For work areas containing less than 260 linear feet or 160 square feet of ACM, post abatement analysis of the samples to determine if re-occupancy clearance standards have been met shall be conducted by PCM. A minimum of five (5) samples shall be collected inside containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. The project shall be considered complete when the results of samples collected in the work area and analyzed by phase contrast microscopy using the most current National Institute for Occupational Safety and Health (NIOSH) method 7400, to show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.010 fibers per cubic centimeter of air).

C. Inspections shall be conducted by the Owner's Consultant throughout the progress of the abatement project. Inspections shall be conducted in order to document the progress of the abatement work as well as the procedures and practices employed by the HMAC. The Asbestos Abatement Project Monitor shall perform the following inspections during the course of abatement activities.

1. Pre-commencement Inspection: Pre-commencement inspections shall be performed at the time requested by the HMAC. The Asbestos Abatement Project Monitor shall be informed 24 hours prior to the time the inspection is needed. During the course of the pre-commencement inspection, the Asbestos Abatement Project Monitor shall inspect the containment. This shall include, but not be limited to, inspection of barrier integrity, the worker decontamination, facility, negative air filtration equipment etc. If during the course of the pre-commencement inspection, deficiencies are found, the HMAC shall perform the necessary adjustments in order to obtain compliance.
2. Work Area Inspections: Work area inspections shall be conducted on a daily basis at the discretion of the Asbestos Abatement Project Monitor. During the course of the work area inspections, the Asbestos Abatement Project Monitor shall observe the HMAC removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the HMAC of specific remedial activities if deficiencies are noted.
3. Pre-sealant Inspection: Upon the request of the HMAC, The Asbestos Abatement Project Monitor shall conduct a pre-sealant inspection. The pre-sealant inspection shall be conducted after completion of the initial final cleaning procedures, but prior to work area encapsulation. The pre-

sealant inspection shall verify that all ACM and residual debris have been removed from the work area. If, during the course of the pre-sealant inspection, the Asbestos Abatement Project Monitor identifies residual dust or debris, the HMAC shall comply with the request of the Asbestos Abatement Project Monitor, in order to render the area is free of visible residue.

4. Final Visual Inspection: Following receipt of acceptable re-occupancy air monitoring results and concurrent with removal of the work area containment, the Asbestos Abatement Project Monitor shall conduct a final visual inspection. If residual dust or debris is identified during the course of the final inspection, the HMAC shall comply with the request of the Asbestos Abatement Project Monitor, in order to render the area free of visible residue.

END OF SECTION 020800

SECTION 020820 - UNIVERSAL WASTE RECLAMATION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The existing Wheeler Middle School located at 298 Norwich-Westerly Road in North Stonington, Connecticut will be undergoing renovations/selective demolition to support the School Modernization Project within the existing School. The reclamation of universal waste products as defined by the State of Connecticut Department of Energy and Environmental Protection (CTDEEP) will be performed in conjunction with the renovation project.

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including Supplementary Conditions and other Division 1 Sections, of the Contract Documents apply to this Section.

1.3 DESCRIPTION OF WORK

A. The Hazardous Materials Abatement Contractor (HMAC) shall furnish all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements, and waste transport, incineration, and reclamation necessary to perform the work required for universal waste removal and reclamation in accordance with these specifications; EPA, OSHA, NIOSH, State of Connecticut regulations, and other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

B. Collection, reclamation and incineration of PCB light ballasts: The HMAC is responsible for removing two (2) light ballasts that have been determined to contain PCB.

C. Collection, reclamation and incineration of electrical capacitors: The HMAC is responsible for disassembling unit ventilators to remove capacitors that are assumed to contain PCB or DEHP.

D. Collection, reclamation of Mercury containing switches: The HMAC is responsible for disassembling switches from within the building that contain Mercury ampoules. Approximately three (3) Mercury switches within the building are included in the scope of work.

E. Collection, reclamation of Mercury vapor light tubes: The HMAC is responsible for disassembling fluorescent lamps that are scheduled to be removed and shall collect Mercury vapor light tubes for recycling. Approximately two thousand sixty four (2164) linear feet of fluorescent bulbs, fifteen (15) round fluorescent bulbs and thirteen (13) compact fluorescent bulbs are included in the scope of work.

F. Collection and reclamation of air conditioner refrigerants: The HMAC is responsible for removing A/C units, water fountains, freezers and refrigerators and reclaiming Freon. Approximately seven (7) tanks are included in the scope of work.

G. Collection, reclamation of lead-acid batteries: The HMAC is responsible for disassembling emergency lighting and signage units to remove approximately thirty five (35) lead-acid batteries for recycling.

H. Additional materials including caulks, paints and glazing compounds have been determined to contain greater than 1 part per million (PPM) PCB. Refer to Section 028400 PCB Remediation Plan for additional requirements for the removal of the PCB containing materials.

1.4 APPLICABLE CODES

A. State Regulations

1. Section 22a-449(c)-113 - Regulations of Connecticut State Agencies (RCSA) for disposal of ballast.
2. Section 22a-465 - Regulations of Connecticut State Agencies for remediation of PCB Bulk Remediation Waste.

B. Federal Regulations

1. 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response
2. 29 CFR 1910.134 – Respiratory Protection
3. 40 CFR 263 – Standards applicable to Transporters of Hazardous Waste
4. 40 CFR 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
5. 40 CFR 268 – Land Disposal Restrictions
6. 40 CFR Part 700 - Toxic Substance Control Act (TSCA)
7. 40 CFR Part 761 - PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibition.

1.5 DEFINITIONS: WHERE APPLICABLE OR STATED, TERMS SHALL HAVE THE FOLLOWING DEFINITIONS:

A. Universal Waste shall mean batteries, Mercury-containing thermostats, certain pesticides, lamps (including but not limited to fluorescent, neon and mercury vapor lamps), and used electronics.

B. Large Quantity Generator means a handler can accumulate 5000 kilograms or more of universal waste at any time.

C. Small Quantity Generator means a handler can accumulate not more than 5000 kilograms or more of universal waste at any time.

D. Handler means the Generator of the universal waste product.

1.6 GENERAL REQUIREMENTS

A. The HMAC is subject to approval by the Consultant and all regulatory agencies with jurisdiction over this work, and may be rejected based on criteria established.

B. The Consultant requires that documentation be provided for all aspects of work detailing the bidder’s qualifications and prior experience on the following criteria:

C. Workers handling universal waste must be informed by their employer of the proper handling and emergency procedures appropriate to the type(s) of universal waste handled at the facility.

PART 2 - PRODUCTS

2.1 TRANSPORTATION AND STORAGE CONTAINERS AND LABELING

A. All containers for universal waste must be closed, structurally sound, compatible with the contents of the universal waste, and must be capable of preventing leakage, spillage or damage that could cause leakage.

B. All universal waste products must be stored in a container and the container shall be properly labeled. Appropriate labeling is as follows.

C. Universal waste lamps (each lamp) or a container or package in which such lamps are contained must be labeled or marked clearly with any of the following: "Universal Waste - Lamp(s)" or "Waste Lamp(s), or "Used Lamp(s)".

D. Universal waste used electronics (each piece of equipment) or a container; package or pallet in which the used electronics are contained must be labeled or marked clearly with any of the following: "Universal Waste - used electronics" or "Waste Used Electronics, or "Used Electronics".

PART 3 - EXECUTION

3.1 BALLAST AND CAPACITOR REMOVAL

A. Light fixtures and electrical motors shall be disassembled and inspected by the HMAC. All resulting lamps and electrical motor capacitors shall be immediately packaged for reclamation.

B. If ballasts or capacitors are found to be leaking, contaminated light fixtures, lenses and electrical motors shall be disposed of as PCB contaminated materials.

C. Workers shall don chemically resistant gloves as exterior surfaces may contain trace quantities of PCB's or DEHP.

D. If a leaking ballast or visibly contaminated light fixture component is detected during removal, workers shall immediately don chemically resistant protective suits, (i.e. Tyvek), to reduce skin contact with PCB's and Mercury.

E. HMAC shall have on hand spill containment and absorbent materials in the event a spillage of PCB-containing fluids occurs. Provide appropriate polyethylene sheeting to protect concrete floor and other surfaces from any spillage.

F. All protective equipment (gloves, suits) and materials contaminated during any cleanup shall be disposed of as PCB contaminated waste along with the ballasts and fixtures.

G. All Ballasts and fixture components shall be placed in DOT-approved barrels for subsequent transport immediately upon removal. Barrels will be labeled with the following yellow PCB caution label:

CAUTION
CONTAINS

PCB's
(Polychlorinated Biphenyls)
A toxic environmental contaminant
Requiring special handling and
Disposal in accordance with U.S.
Environmental Protection Agency
Regulations 40 CFR 761 - For
Disposal Information contact the
Nearest U.S. EPA Office.

In case of accident or spill, call toll
Free the U.S. Coast Guard National

Response Center:
800-424-8802

H. Separate ballasts and capacitors and fixture components into separate drums. Leaking ballasts and capacitors shall be separate from all other items.

I. Use new 17C 55-gallon open head steel drums that have been approved for transporting hazardous materials. Used or reconditioned drums may be used only if they have been properly cleaned, tested, and labeled.

J. Drums shall be prepared by placing one to three inches of absorbent material in the bottom of the drum.

K. Drums shall be packed so as to not exceed a total weight of 900 pounds. If proper handling equipment is not available, half fill the drums so that manual handling is possible.

3.2 MERCURY VAPOR LAMP AND FIXTURE REMOVAL

A. Light fixtures shall be disassembled and inspected by the HMAC. All resulting lamps shall be immediately packaged for reclamation.

B. Workers shall don chemically resistant gloves as exterior surfaces may contain trace quantities of PCB's or Mercury.

C. Carefully remove fluorescent lighting and place directly into boxes or barrels specifically designed for the transport of fluorescent lighting. Package lighting and ballast in accordance with the recycling facilities requirements. Broken glass and residual dust shall be HEPA vacuum and disposed of as Mercury contaminated materials.

D. Manifest lighting reclamation at an approved facility. Provide proof of reclamation at the completion of the project.

3.3 MANIFESTING AND TRANSPORTING PCB MATERIALS

A. All drums and bulk items shall contain a material profile which includes the name, address, and telephone number of the waste generator; the date on which the materials were removed; a description of the materials, i.e., discarded light ballasts; and the new DOT Shipping Description, (RQ, Polychlorinated Biphenyl, 9, UN2316, PGII).

B. Provide a Connecticut Department of Energy and Environmental Protection (DEEP) Hazardous Waste Manifest and/or federal Uniform Hazardous Waste Manifest, as appropriate with each shipment.

C. Drums and bulk items shall be transported by a Connecticut licensed hazardous waste hauler, unless leaking ballasts are involved, in which case a registered PCB hauler shall be utilized.

D. Drums and bulk items shall be transported from the work site immediately upon completion of removal and packing. No materials are to be stored at the site.

3.4 PCB MATERIAL INCINERATION

A. Ballasts, capacitors and contaminated components shall be transported to an approved Recycling/Incineration facility in accordance with any waste hauler special requirements. Connecticut DEP regulations prohibit disposal at landfills.

B. Provide waste shipment records and waste manifests and or recycling certificates confirming the proper handling of PCB containing light ballast and capacitors, PCB contaminated components and Mercury vapor lighting.

3.5 INERT GAS RECLAMATION

A. All lighting shall be packaged and transported in accordance with the reclamation facilities requirements.

B. Provide Reclamation Certificates following work.

3.6 RECLAMATION OF MERCURY CONTAINING THERMOSTATIC CONTROLS

A. Disassemble thermostatic controls and remove Mercury containing ampoules from thermostat housing.

B. Package, store and ship ampoules in approved containers from recycling facility.

C. Provide Reclamation Certificates following work.

3.7 RECYCLING OF LEAD ACID BATTERIES

A. Disassemble fixtures and remove lead acid batteries.

B. Package, store and ship batteries in approved containers from recycling facility.

C. Provide Reclamation Certificates following work.

END OF SECTION 020820

SECTION 020900 - LEAD PAINT AWARENESS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Supplementary Conditions and Division 1 Specifications Sections, of the Contract Documents apply to this Section.

1.2 PROJECT DESCRIPTION

A. The work specified herein covers the proper worker protection, work area preparation and removal and disposal of lead-based paint coated building components associated with the demolition work at the Wheeler Middle School located at 298 Norwich-Westerly Road in North Stonington, Connecticut.

B. Certain building components at the building were determined to contain levels of lead in paint that may cause worker exposure during renovation and demolition work. Any disturbance to the lead-based painted components resulting from manual demolition or work necessary to facilitate demolition/renovation shall be conducted in accordance with this specification. This project does not involve lead-based paint abatement in accordance with the State of Connecticut Department of Public Health (CTDPH) Lead Poisoning Prevention and Control Regulations.

C. The personnel performing lead-based paint removal work shall be trained in accordance with the Department of Labor's Occupational Safety and Health Administration (OSHA) 29 CFR 1926.62. Lead in Construction Standard. This Specification is intended to provide general information pertaining to lead in surface coatings at the site and to assist the HMAC in complying with applicable worker protection and disposal laws. It is the sole responsibility of the HMAC to comply with all OSHA worker protection laws and disposal laws.

D. All painted, varnished, shellacked, stained, primed or otherwise coated surfaces should be assumed to contain lead above 0.0 mg/cm^2. Trades performing work that impact any painted, varnished, shellacked, stained, primed or otherwise coated surface must comply with the requirements of OSHA 29 CFR 1926.62 Lead in Construction Standard.

E. The following is a general list of building materials, which contain lead in coatings above 1.0 mg/cm^2:

1. 1950 Original Building Interior – masonry walls in Boiler Room (Room 001); metal door components; window components; wood closet shelf components; limited plaster walls and wood crown molding; wood mantle in Room 010; wood baseboard.
2. 1950 Original Building Exterior – wood soffit, fascia, door and window components and overhang; metal lintels and window components, and presumed on non-accessible structural steel.
3. 1960 Addition Exterior – Tectum overhang, metal framing to Tectum and exposed I-beams (and presumed non-accessible structural steel).
4. Additionally, several building materials were determined to contain low levels of lead in paint. Although these levels of lead in paint were less than 1.0 mg/cm^2, the contractor must perform an exposure assessment on employees during tasks that disturb the painted materials.

F. Painted interior walls and structural steel were also determined to contain polychlorinated biphenyls (PCB). Refer to Section 028400 PCB Remediation Action Plan for additional requirements.

G. The Hazardous Materials Abatement Contractor (HMAC) shall review the mechanical drawings to determine locations where structural steel will be impacted by building separation. Surface coatings on

steel shall be removed a minimum of six (6) inches in each direction from proposed cut lines on the steel before any cutting or welding.

H. The HMAC should assume that building components that were not tested that are like in color and construction date have similar lead paint levels as the components that were tested. The above referenced list in general in nature and does not represent a comprehensive list of leaded surfaces. In accordance with OSHA 29 CFR 1926.62, the HMAC must assume certain exposure levels for certain tasks in the absence of testing or personal exposure monitoring data. It is the sole responsibility of the HMAC to comply with OSHA 29 CFR 1926.62 for all tasks that disturb paint, varnish, shellac, stain or other surface coatings.

I. Refer to the Architects demolition plan and the lead paint testing results to identify lead painted components scheduled for demolition, restoration or repair. All components and surfaces that will be impacted by the work of this project shall be covered by this specification.

J. Components scheduled to remain within scheduled work areas which are coated with lead-based paint shall undergo paint stabilization in accordance with this specification prior to repainting by others.

K. Preliminary lead waste characterization testing has **not** been performed at this time.

L. The HMAC shall review the renovation and demolition plans and determine quantities of waste by classification and include in their Bid. No change orders will be issued for waste disposal.

1.3 APPLICABLE CODES

A. The HMAC shall be solely responsible for conducting this project and supervising all work in a manner which will be in conformance with all federal, state and local regulations and guidelines pertaining to lead paint abatement. Specifically, the HMAC shall comply with the requirements of the following:

1. Occupational Safety and Health Administration: OSHA
    a. 29 CFR 1910 General Industry Standards
    b. 29 CFR 1910.1025 Lead Standard for General Inventory
    c. 29 CFR 1910.134 Respiratory Protection
    d. 29 CFR 1910.1200 Hazard Communication
    e. 29 CFR 1910.245 Specifications for Accident Prevention (Sign and Tags)
    f. 29 CFR 1926.62 Lead in Construction Final Rule
2. State of Connecticut Department of Energy and Environmental Protection: DEEP
    a. Guidance for the management and disposal of lead contaminated materials generated in the lead abatement renovation and demolition industries.
    b. All applicable hazardous solid waste disposal regulations.
3. USEPA
    a. 40 CFR 745.100 - .119 Final Rule
    b. 40 CFR Part 261 United States Environmental Protection Agency

1.4 DEFINITIONS

A. “Action level” means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m (3)) calculated as an 8-hour time-weighted average (TWA).

B. "Biological monitoring" means the analysis of a person's blood and/or urine, to determine the level of lead contamination in the body.

C. “Competent person” means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

D. “Containment” means the process of erecting polyethylene barriers to control dust and debris emissions which is intended to keep adjacent areas and environment free of contamination.

E. "HMAC" means the primary contractor and all sub contractors performing the lead removal work.

F. “Exposure assessment” means the process of collecting and analyzing personal air samples to determine a worker’s potential to be exposed to contaminants and to determine the level of respiratory and personal protective equipment that would be suitable to prevent exposure from occurring.

G. HEPA (High Efficiency Particulate Air) means a type of filtering system capable of filtering out particles of 0.3 microns or greater diameter from a body of air at 99.97% efficiency or greater.

H. "High phosphate detergent" is detergent that contains at least five (5%) percent tri-sodium phosphate (TSP).

I. “Lead” means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

J. PEL (Permissible exposure limit) means the maximum allowable airborne concentration a worker can be exposed to over an eight (8) hour work shift without having to don respiratory and personal protective equipment. The OSHA PEL is 50 ug/m^3.

K. RCRA (Resource Conservation Recovery Act): The EPA enforced act, which establishes regulatory levels for hazardous chemicals. There are eight (8) heavy metals of concern for disposal: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver.

L. Standard means the OSHA Lead in Construction Standard 29 CFR 1926.62.

M. Toxicity Characteristic Leachate Procedure: Is the EPA required sample preparation and analysis for determining the hazard characteristic of a waste generated at a lead abatement site.

1.5 FEES, PERMITS AND LICENSES

A. The HMAC shall comply with the provisions of all permits or applications required by the work specified, as well as make all submittals required under those auspices.

B. The HMAC shall make notifications to the local Police Department and Fire Department regarding the project.

1.6 SEQUENCING AND SCHEDULING

A. The HMAC shall extend full cooperation to Owner in all matters involving the use of Owner's facilities. At no time shall the HMAC cause or allow to be caused conditions that may cause risk or hazards to the general public or conditions that might impair safe use of the facility.

B. The HMAC shall submit a time-line schedule, not date specific, to Owner and Consultant for integration into the overall project schedule. Coordinate the work of this section with the needs of the Owner and General Contractor. Phasing and scheduling of this project will be at the discretion of the General Contractor and shall not proceed in any area without the express consent of the General Contractor.

C. The HMAC shall coordinate their work with the progress of the work of other trades so that the work shall be completed as soon as conditions permit.

D. Schedule initial assessment work in areas where the work will not cause an exposure potential to unprotected individuals.

1.7 SUBMITTALS

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work.

B. The HMAC shall provide the following pre-project submittals prior to initiating work at the site:

1. Copies of all notifications, permits, applications, licenses and like documents required by federal, state and local regulations obtained or submitted in proper fashion.
2. Copies of medical records for each employee to be used on the project.
3. Record of successful respirator fit testing performed by a qualified individual within the previous year, for each employee to be used on this project with the employee's name and social security number with each record.
4. Proposed respiratory protection program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used.
5. Written description, for the Owner's review and acceptance, of all proposed procedures, methods or equipment to be utilized that differ from the Contract Specifications, including manufacturers' specifications on any equipment not specified for use by this Section; in all instances, the HMAC must comply with all applicable federal, state and local regulations.
6. Proposed electrical safeguards to be implemented by qualified Electrical Contractor, including but not limited to location of GFCI outlets, lighting, and power panels necessary to safely perform the job including a description of electrical hazards safety plan for common practices in the work area.
7. Chain-of-Command of responsibility at work site including supervisors, foremen, and competent person, their names, resumes and certificates of training.
8. List of all supervisors and workers intended to be assigned to the project.
9. The name and address of HMAC's blood lead testing lab, OSHA-CDC listing, and Certification in the state where work site is located.
10. The name and address of HMAC's personal air monitoring and waste disposal lead testing laboratory (ies) including certification(s) of AIHA accreditation for heavy metal analysis, listing of relevant experience in air and debris lead analysis.
11. Safety Data Sheets (SDS) on all materials and chemicals to be used on the project.
12. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.
13. Name, address, and ID number of the proposed construction debris site.
14. Temporary EPA Hazardous Waste I.D. No.
15. Copy of each workers lead awareness training certificate.
16. Copy of each workers initial blood lead level and zinc protoporphorin level.
17. Lead Based Paint compliance plan.

C. The HMAC shall provide the following post-project submittals at the completion of the work on site:

1. Copies of completed hazardous waste manifests with signatures from the landfill acknowledging receipt of the hazardous waste.
2. Copies of completed non-hazardous waste manifests.
3. Copies of work area access logs.
4. Copies of supervisor log

5. Copies of post project blood lead levels and zinc protoporphorin levels for each worker and supervisor who worked on the site.
6. Copies of all OSHA Compliance air sampling results.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

C. Fire retardant polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 6 mil.

D. Polyethylene disposable bags shall be six (6) mil with pre-printed label. Tie wSIPs for bags shall be plastic, five (5) inches long (minimum), pointed and looped to secure filled plastic bags.

E. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Impermeable containers are to be used to received and retain any lead containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with EPA and DOT standards.)

G. HEPA filtered exhaust systems shall be used during any dust generating deleading operations.

H. Other materials such as lumber, nails and hardware necessary to construct and dismantle the decontamination enclosures and the barriers that isolate the work area shall be provided as appropriate for the work.

PART 3 - EXECUTION

3.1 INITIAL EXPOSURE ASSESSMENT

A. In order to comply with the requirements of OSHA 29 CFR 1926.62 Lead in Construction regulation, an initial exposure assessment must be performed for each activity that disturbs lead paint covered building materials. If the results of the initial exposure assessment are less than the “Action Level” for lead dust exposure of 30 micrograms per cubic meter of air, the employer is not obligated to comply with most requirements of the regulation. If the results of the initial exposure assessment are greater than the Action Level for lead dust exposure, all requirements of the Standard apply.

B. The Scope of this Section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from the general industry standard for lead 29 CFR 1910.1025(a) (2) is covered by this section. This includes but is not limited to the following.

1. Demolition or salvage of structures where lead or materials containing lead is present.
2. Removal or encapsulation of materials containing lead.
3. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof that contain lead, or materials containing lead.
4. Lead contamination cleanup

5. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed.

C. The HMAC shall assume that the employee is being exposed above the Permissible Exposure Level (PEL) until an initial exposure assessment has been completed for each lead related task being performed.

D. For the purpose of the initial exposure assessment, employee exposure is that exposure which would occur if the employee were not using a respirator.

E. The employer shall collect personal air samples representative of a full shift including at least one sample for each job classification in each work area for each shift or for the shift with the highest exposure level.

F. Until the employer performs an initial exposure assessment as required by the Standard, the employer shall provide appropriate respiratory protection, appropriate personal protective equipment, clean change areas, hand washing facilities, biological monitoring, training under 29 CFR 1926.59, Hazard Communication; 29 CFR 1926.62 – Lead, 29 CFR 1926.21, Safety Training and Education.

G. Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the Action Level during processing, use or handling, the employer may rely upon such data instead of implementing initial monitoring.

3.2 LEAD-BASED PAINT COMPLIANCE PLAN

A. The HMAC shall be required to submit a lead-based paint compliance plan to the Owner detailing how the HMAC will maintain compliance with this Specification.

B. The HMAC shall describe the work procedures within the compliance plan that will be utilized to prevent contamination to the work site and surrounding environment.

C. The HMAC shall describe the work procedures and engineering controls that will be implemented to ensure that workers are not exposed above OSHA's PEL for lead dust exposure.

D. The HMAC shall describe how compliance with the hazardous waste disposal regulations will be met.

3.3 DUST GENERATING ACTIVITIES – WORK AREA PREPARATION

A. The HMAC shall establish a clean area outside the abatement areas for workers to change into protective clothing and store personal belongings.

B. Due to the presence of lead and PCB in paint on the building, when dust generating activities are undertaken, the work area shall be isolated by a negative pressure enclosure utilizing the following procedures.

1. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.
2. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s). Under no circumstances during the abatement and ceiling demolition procedures will lighting fixtures be permitted to be energized.
3. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. Lock and tag out circuits

associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

4. Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. This includes doorways and corridors which will not be used for passage during work areas and occupied areas. Install 5 micron water filtration socks in all floor drains prior to sealing.
5. Pre-clean movable objects within the work areas, using HEPA vacuum equipment and wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.
6. After HEPA vacuum pre-cleaning, conduct work area preparation in accordance with this Specification section.
7. Where fixed walls are not used, one layer of six (6) mil polyethylene sheeting will be applied to a rigid framework of wood, metal, or PVC.
8. Install two layers of four (4) mil polyethylene wall sheeting over all wall surfaces and critical barrier. All overlaps shall be sealed with tape or spray adhesive.
9. Cover all floors in the work area with two layers of six (6)-mil polyethylene sheeting (where flooring materials are not being removed as ACM, see Specification Section 020800, Asbestos Abatement). Extend the polyethylene flooring a minimum of twelve (12) inches up the walls. Ensure that the wall sheeting overlaps the floor sheeting from the top.
10. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.
11. Create pressure differential between work areas and occupied areas by the use of acceptable negative air pressure equipment. The HMAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.
12. The HMAC shall post lead hazard warning signs in accordance with OSHA 29 CFR 1926.62. It shall be the sole responsibility of the HMAC to ensure that only authorized personnel are permitted to enter the work area. A work area access log shall be maintained at the entrance to the work area. Authorized personnel shall sign in and out of the work area containment.
13. Lintels impacted by this scope of work shall be cleaned to the NACE Visual Standard Number 2 criteria or removed and disposed of as hazardous lead and PCB bulk product waste.

3.4 NON DUST ACTIVITIES – WORK AREA PREPARATION

A. The HMAC shall establish a clean area outside the abatement areas for workers to change into protective clothing and store personal belongings.

B. When activities are undertaken that don't readily create dust, the work area shall be isolated from other trades by barrier caution tape. A buffer zone of a minimum of ten (10) feet is recommended between lead demolition activities and general trades work.

C. The HMAC shall post lead hazard warning signs in accordance with OSHA 29 CFR 1926.62. It shall be the sole responsibility of the HMAC to ensure that only authorized personnel are permitted to enter the work area. A work area access log shall be maintained at the entrance to the work area. Authorized personnel shall sign in and out of the work area containment.

3.5 PERSONAL PROTECTION

A. Workers shall don protective gear prior to entering work area including respirators, disposable coveralls, and footwear. Street clothes shall not be permitted to be worn under protective clothing. The HMAC shall provide a clean area for workers to store street clothes and personal belongings.

B. Eye protection, head protection, and ear protection shall be provided to each worker.

C. The HMAC shall establish a wash station in close proximity to the work area where workers shall decontaminate their person. The wash station shall be supplied with warm water and soap and an ample supply of drying towels. Wash water shall be tested for proper disposal.

D. All equipment used by workers inside the work area shall be wet wiped or bagged for later decontamination before removal from work area.

E. The HMAC is responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by GFIs.

3.6 EXTERIOR WORK AREA PREPARATION

A. The lead-abatement Contractor shall regulate the exterior abatement area utilizing lead abatement caution tape. The regulated area shall extend a minimum of fifteen (15) feet from the building.

B. The HMAC shall post Lead Warning signs in conspicuous locations around each work area. Signs shall be in conformance with OSHA 29 CFR 1926.62. At a minimum, signs shall be posted at each ingress to the work area.

C. The HMAC shall remove all moveable objects from inside of the proposed work area.

D. The HMAC shall cover the ground with sturdy nylon reinforced drop cloths covered with six mil drop cloths. The sturdy nylon reinforced drop cloths shall be secured to the foundation of the building. The Drop cloths shall extend a minimum of ten feet from the building.

E. The HMAC shall cover all fixed objects inside the proposed work area with six-mil polyethylene sheeting. Critical barriers shall be sealed with duct tape.

F. As work progresses, stockpile demolished debris inside regulated area.

3.7 LEAD-BASED PAINT DEMOLITION PROCEDURE

A. Prior to any lead-based paint removal, the HMAC shall ensure that work area set up has been completed in accordance with applicable work area preparation section. Refer to the architects plans and specifications to determine extent of work demolition.

B. Where possible, the HMAC shall remove components in their full units and shall minimizing breakage to the best extent feasible.

C. The HMAC shall perform all incidental work necessary to facilitate removal of lead-based painted components.

D. Dust control measures must be employed during demolition work.

E. The HMAC shall transport lead-based painted components to the appropriate waste container as required to keep the work area free from tripping hazards.

F. The HMAC shall clean all loose paint chips generated during component removal or disturbance. Containerize all paint chips and hold for waste characterization testing.

3.8 PAINT REMOVAL ACTIVITIES

A. Prior to any paint stabilization, the HMAC shall ensure that work area set up has been completed in accordance with applicable work area set up section.

B. The HMAC shall be responsible for removing paint for structural steel where steel will be cut to support the mechanical work of this project. Refer to the Architect's specifications for locations of steel alterations.

C. Utilize methods that do not create dust or fumes. Accepted methods will include chemical paint removal, needle gun or mechanical removal with HEPA duct collection devices at point of use.

D. Remove paint a minimum of six (6) inches in each direction of the cut lines. Containerize paint chips and dispose of as hazardous lead waste.

E. Wipe clean steel and containment surfaces with a lead cleaning detergent following removal activities.

3.9 PROHIBITED ACTIVITIES

A. The HMAC shall be prohibited from the following:

1. Sanding lead-based painted components without HEPA dust collection devices and appropriate engineering controls.
2. Open flame paint removal.
3. Torch cutting steel components without appropriate engineering controls.
4. Rivet busting without appropriate engineering controls.
5. Creating visible dust or fumes during lead-based paint removal.

3.10 CLEANING

A. Interior Cleaning - All paint chips collected during clean up shall be placed in airtight leak proof drums. Drums shall be immediately labeled with hazardous waste accumulation start date stickers. Drums shall be stored in a secure locked area until they are transported off site for disposal. All paint chips will be treated as hazardous lead waste.

B. Small debris will be picked up, collected and placed into a single six-mil plastic bag or six-mil polyethylene sheeting. The bags shall not be overloaded, shall be securely sealed, and shall be transported to the hazardous lead waste disposal container. The hazardous lead waste disposal container shall be of the enclosed type and shall be kept locked except during loading operations. The HMAC shall apply the hazardous lead waste accumulation start date sticker to the container the first day waste is put into the waste container.

C. The HMAC shall thoroughly wet sweep the effected work areas. Floors shall be mopped with a 5% high phosphate solution or equivalent. The resulting liquid waste shall be disposed of in accordance with all applicable local, state, and federal regulations.

D. The HMAC shall dispose of the exterior polyethylene sheeting. The Owner's Consultant shall perform a visual inspection of the polyethylene sheeting to determine adequacy of cleaning procedures prior to removal

E. The HMAC shall HEPA vacuum all paint chips from the soil within the work area.

3.11 DISPOSAL OF WASTE MATERIALS

A. Caution Note for Contractors: All materials, whether hazardous or non-hazardous, shall be disposed of in accordance with all laws and the provisions of any or all applicable federal, state, county, or local regulations and guidelines. It shall be the sole responsibility of the HMAC to assure compliance with all laws and regulations relating to this disposal.

B. All additional waste materials generated during abatement including paint chips, disposable clothing, polyethylene sheeting, waste water, etc., shall have confirmatory TCLP testing to determine waste characterization. This testing shall be performed and paid for by the HMAC. Results shall be furnished to the Owner and Consultant.

C. The HMAC is responsible for performing and paying for all additional waste characterization testing, waste profiling and all other information required by their selected landfill for each shipment of waste.

D. All paint removed from steel components shall be disposed of as hazardous lead waste and PCB Connecticut Regulated Waste (CR01).

END OF SECTION 020900

SPECIFICATION 028400 - PCB REMEDIATION PLAN

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Polychlorinated biphenyls (PCB) in excess of one (1.0) parts per million (ppm) have been identified in source materials (mastics, paints, caulks, and glazing compounds) at the Wheeler Middle School located at 298 Norwich-Westerly Road in North Stonington, Connecticut (herein referred to as the "Site"). PCB in excess of one (1.0) ppm was also presumed in associated substrates and untested caulks, paints, and adhesives at the Site.

B. The Hazardous Materials Abatement Contractor (HMAC) shall remove all source materials containing greater than one (1.0) ppm PCB that will be impacted by the Additions and Renovations Project (Project) from the Site for disposal as PCB Bulk Product Waste or Connecticut Regulated Waste. PCB remediation will include the removal of window systems and associated contaminated masonry from the 1960 Addition and painted walls and partitions and associated adhesives and mastics for disposal as PCB Bulk Product Waste. Remediation will include the removal of flooring mastics from the 1960 Addition and paint from the Boiler Room for disposal as Connecticut Regulated Waste. Fiberboard roof panels will be removed and disposed of as PCB Remediation Waste greater than fifty (50) ppm. Painted structural steel will be disposed of Connecticut Regulated Waste.

C. The cleanup of PCB Bulk Product Wastes will be performed under *disposal in a solid waste landfill* §761.62(b).The cleanup of PCB Remediation Wastes will be performed under a *self-implementing cleanup and disposal* 40CFR §761.61(a).

1.2 SCOPE OF WORK

A. The scope of the Project, as presented to Eagle Environmental, Inc. by the project architects, Quisenberry Arcari Architects, LLC (QAA), includes the demolition of the entire building.

B. **Site Characterization**: Refer to the *Remediation Action Plan, School Modernization Project, Wheeler Middle School, 298 Norwich-Westerly Road, North Stonington, Connecticut* (SIP) for summaries of the site characterization, waste disposition, and remediation quantities.

1. The Wheeler Middle School is a single-story structure with an exterior brick veneer. The original building was constructed in 1950 and additions to the building were added in 1960 and 1992.
2. The original 1950 Building is constructed over a partial basement and slab on grade with a central tunnel housing the mechanical distribution systems. Structural framing is concrete and steel columns and beams. Interior walls and partitions are primarily painted brick and sheetrock construction.
3. The 1960 Addition rests slab on-grade. Structural framing is steel. Interior walls and partitions are primarily concrete block.
4. Mechanical equipment consists of a gas fired radiant heat system. The basement and tunnel piping is exposed and all risers are contained within the walls on the floors above. The two (2) boilers are located in the basement of the structure.
5. Metal louvers, windows, and door frames are caulked into the openings. Window panes and panels are sealed into sashes with glazing compounds. The concrete floors are finished with various resilient flooring finishes, carpeting, and ceramic tile. Flooring was replaced in 1992. The roofs were replaced with rubber membranes in 1992.

NOTE: Characterization of the 1992 Addition was not performed as the building was constructed well beyond the 1984 EPA ban on the use of PCB in building materials.

C. PCB Site characterization and waste dispositions are summarized below:

1. **PCB Bulk Product Waste**

The following source materials and the substrates contaminated by these source materials are regulated as PCB Bulk Product Waste by the U.S. Environmental Protection Agency (EPA) under the Toxic Substance Control Act (TSCA) and the Connecticut Department of Energy and Environmental Protection (DEEP).

1950 Building

- All interior caulks, paints, adhesives, glazing compounds, and adhesives that were not sampled are assumed to be PCB Bulk Product Wastes

1960 Addition

- Exterior and interior window frame caulk and associated brick veneer
- All interior caulks, paints, glazing compounds, and adhesives that were not sampled are assumed to be PCB Bulk Product Wastes

2. **Connecticut Regulated Waste (CR01)**

The following source materials contain greater than one (1) but less than fifty (50) ppm PCB and are regulated by DEEP:

1950 Original Building

- Interior paint on walls
- Paint on structural steel (paint on structural steel may also contain high levels of lead. Refer to Section 020900)

1960 Addition

- Interior paint on walls
- Paint on structural steel (paint on structural steel may also contain high levels of lead. Refer to Section 020900 for additional requirements)
- Floor tile mastic

The above listed materials are Excluded PCB Products and are not regulated by EPA. The above listed materials and substrates contaminated by these source materials are, however; regulated for disposal as CR-01, Connecticut Regulated Waste, by DEEP. Interior caulks, glazing compounds, adhesives, mastics, etc. that have not been tested are presumed to be PCB Bulk Product Wastes and are integral to the CR01 listed above; therefore, the CR01 listed above may be included in the PCB Bulk Product Waste stream.

3. **PCB Remediation Waste (greater than fifty ppm)**

The following material, presumed to be contaminated by an unknown PCB Bulk Product, contains greater than fifty (50) ppm PCB, and is regulated by EPA under the Toxic Substance Control Act (TSCA) and DEEP.

1950 Building

- Fiberboard roof deck

D. **Remediation Quantities**: Refer to the *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, north Stonington, Connecticut* (SIP) and Table III (Appendix C) for summaries of the site characterization, waste disposition, and remediation quantities.

1. The scope of PCB remediation at the Site is summarized below

TABLE I – BASE BID					
PCB Source	**Substrate**	**Locations**	**Remediation Method**	**Waste Disposition**	**Estimated Quantity**
Interior and exterior window frame caulk and glazing compounds	Partition windows at entry door	North Façade 1950 Building	Demo and dispose	PCB Bulk Product Waste	4,500 SF
	Window Units	East and West Facades 1960 Addition			
	Brick Veneer				
Floor tile mastics	Vinyl floor tile	Throughout 1960 Addition except bathrooms	Demo and dispose	CR01	11,500 SF
	Concrete slab		Blast or grind mastic from concrete	CR01	11,500 SF
Paint, adhesives, caulks, glazing compounds, mastics	Interior walls and partitions	Throughout	Demo and dispose	PCB Bulk Product Waste	28,000 SF
	Painted structural steel	Throughout	Demo and dispose	CR01	75 tons
	Painted concrete	Basement boiler room	Blast or grind from concrete	CR01	3,000 SF
Unknown	Fiberboard panels in hallway	Under gypsum roof deck 1950 Building	Demo and dispose	PCB Remediation Waste >50 ppm	2,800 SF
TABLE II – ALLOWANCES					
PCB Source	**Substrate**	**Locations**	**Remediation Method**	**Waste Disposition**	**Estimated Quantity**
Unknown	Fiberboard panels in rooms beyond hallway	Under gypsum roof deck 1950 Building	Demo and dispose	PCB Remediation Waste >50 ppm	8,500 SF

E. The PCB Remediation Plans (SIP-1through SIP-3) are included with the *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, North Stonington, Connecticut* (SIP). The Site Characterization and Waste Disposition Summary Table (Table III) is included as Appendix C of the SIP.

1.3 GENERAL REQUIREMENTS

A. The HMAC shall furnish all labor, materials, facilities, equipment, installation services, employee training, notifications, permits, licenses, certifications, agreements and incidentals necessary to perform

the specified work. Work shall be performed in accordance with the Contract Documents, the latest regulations from the Occupational Safety and Health Administration (OSHA), the EPA, the State of Connecticut, and all other applicable federal, state and local agencies. Whenever the requirements of the above references conflict or overlap, the more stringent provision shall apply.

B. All project personnel engaged in the remediation work covered under this section shall be trained with OSHA 40-Hour HAZWOPER training as described in OSHA Regulations 29 CFR 1910 and 1926.

C. The HMAC shall provide a Project Health and Safety Officer having a minimum of eight (8) hours of supervisor training in hazardous waste site operations as described in 29 CFR 1910. The supervisor shall be on site at all times during remediation work.

1.4 GENERAL SCOPE OF WORK

A. The HMAC shall be responsible for the removal and disposal of PCB Bulk Product Waste, PCB Remediation Waste, Connecticut Regulated Waste, and other materials indicated on the PCB Remediation Plans, SIP-1 through SIP-3, Attachment B of the *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, north Stonington, Connecticut* (SIP).

B. The HMAC shall be responsible for encapsulation of porous substrates indicated on PCB Remediation Plans, SIP-1 through SIP-3, Attachment B, *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, north Stonington, Connecticut* (SIP).

C. The HMAC shall be responsible for decontaminating all working surfaces of tools and equipment that contact contaminated materials shall be decontaminated using the methods prescribed by 40 CFR 761 Subpart S. The HMAC shall capture all decontamination fluids and handle them in accordance with §761.60 and the *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, north Stonington, Connecticut* (SIP).

D. The HMAC shall be responsible for disposal of all decontamination materials (i.e. PPE, used containment barriers, etc.) in accordance with the *Self-Implementing On-Site Cleanup and Disposal Plan, Wheeler Middle School, 298 Norwich-Westerly Road, north Stonington, Connecticut* (SIP).

1.5 SUBMITTALS

The following documents shall be submitted to the Owner's Consultant:

A. Training Documentation: Documentation of 8-Hour HAZWOPER Supervisor Training for the designated on-site Health and Safety Officer and 40 Hour HAZWOPER for all engaged personnel.

B. Work Plan: A written work plan that details the means and methods to be used for the removal and disposal of scheduled materials, waste container staging, ground protection, and the HMAC's plan to protect workers and prevent PCB migration from work areas.
The work plan shall include the following elements:

1. Floor plans and/or site plans indicating the proposed work areas, containment barriers, fencing, weather and erosion control, and signage for all PCB removal work as outlined in this Specification;
2. Specific procedures to be used to remove and dispose of scheduled items and decontamination of equipment, and tools;
3. Detailed plans and procedures for removal of scheduled materials from in situ positions, transport of the materials to waste containers, reduction of waste materials for disposal requirements;

4. Detailed plans and procedures to ensure that further contamination of the Site does not occur as the result of remediation procedures;
5. Detailed procedures for personnel and equipment decontamination including procedures for the capture and containment of decontamination fluids.
6. A detailed proposed schedule for all remediation, disposal, and verification activities.

C. PCB Disposal Plan: A written plan that details the HMAC's plan for transportation and disposal of PCB-containing wastes generated during the project.

The Disposal Plan shall identify:

1. Waste packaging, labeling, placarding and manifesting procedures,
2. A list of anticipated waste profiling procedures and samples and identification of the firms that will collect and analyze the samples.
3. The name, address, 24-hour contact number, and EPA TSCA Approval (if applicable) for the proposed treatment or disposal facilities to which wastes generated during the project will be transported.
4. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters, and EPA identification number for firms that will transport hazardous waste.
5. A site plan indicating where waste disposal containers will be staged and how they will be labeled and secured.
6. The route(s) by which the waste will be transported to the designated disposal facility, and states or territories through which the waste will pass if the waste is to be disposed of outside of the State of Connecticut.
7. Material Safety Data Sheets: Material Safety Data Sheets (OSHA Form 174 or equivalent) and manufacturer's information shall be provided for all chemicals and materials to be used during the project including decontamination fluids.

D. Health and Safety Plan

1. The HMAC is responsible and liable for the health and safety of all on-site personnel and the off-site community affected by the project. All on-site workers or other persons entering the abatement work areas, decontamination areas or waste handling and staging areas shall be knowledgeable of and comply with the requirements of the site-specific Health and Safety Plan (HASP) at all times. The HMAC's HASP shall comply with all applicable federal, state and local regulations protecting human health and the environment from the hazards posed by the work to be performed under this project.
2. The HASP shall carry the endorsement and signature of a health and safety professional.
3. The HMAC shall not initiate on-site work in the contaminated areas until the HASP has been finalized and reviewed and accepted by the Owner’s Consultant.
4. Consistent disregard for the provisions of the HASP shall be deemed as sufficient cause for immediate stoppage of work and termination of the Contract or any Subcontracts without compromise or prejudice to the rights of the Owner or the Architect.
5. Any discrepancies between the HMAC's HASP and these specifications or federal and state regulations shall be resolved in favor of the more stringent requirements that provide the highest degree of protection to the project personnel and the surrounding community and environment, as determined by the Owner’s Consultant.
6. In addition to exposure concerns relating to the presence of PCB, other health and safety considerations will apply to the work. The HMAC shall be responsible for recognizing such hazards and shall be responsible for the health and safety of HMAC employees at all times. It is the HMAC's responsibility to comply with all applicable health and safety regulations.
7. The HMAC shall prepare and submit a site-specific HASP to the Owner’s Consultant a minimum of ten (10) business days prior to commencement of abatement work, The HASP shall govern all work conducted at the site during the remediation of glazing, caulk, and related debris; waste

handling, sampling, and management; and waste transportation.

8. At a minimum, the HASP shall address the requirements set forth in 29 CFR 1910.120, as further outlined below:
   a. Health and Safety Organization
   b. Site Description and Hazard Assessment
   c. Training (HAZWOPER/Asbestos)
   d. Medical Surveillance
   e. Work Areas
   f. Personal Protective Equipment
   g. Personal Hygiene and Decontamination
   h. Standard Operating Procedures and Engineering Controls
   i. Emergency Equipment and First Aid Provisions
   j. Equipment Decontamination
   k. Air Monitoring
   l. Telephone List
   m. Emergency Response and Evacuation Procedures and Routes
   n. Site Control
   o. Permit-Required Confined Space Procedures(If Applicable)
   p. Spill Containment Plan
   q. Heat and Cold Stress
   r. Record Keeping
   s. Community Protection Plan

9. The HASP shall be reviewed by all persons prior to entry into the abatement, decontamination, or waste staging areas, whether a representative of the HMAC, Owner, Architect/Engineer, Environmental Consultant, subcontractors, waste transporter or federal, state or local regulatory agency. Such review shall be acknowledged and documented by the HMAC's Health and Safety Officer by obtaining the name, signature and affiliation of all persons reviewing the HASP.
10. The HASP shall be maintained so as to be readily accessible and reviewable by all site personnel throughout the duration of the-abatement project and until all waste materials are removed from the site and disposed of at the appropriate disposal facility.
11. The HMAC's on-site Health and Safety Officer shall be responsible for ensuring that project personnel and site visitors are informed of and comply with the provisions of the HASP at all times during the project.

E. The following documents shall be submitted to the Owner’s Consultant within seven (7) calendar days following removal of waste from the site:

1. Waste Profile Sheets
2. Pre-Disposal Analysis Test Results (if testing is conducted)
3. Manifests signed by the disposal facility
4. Tipping Receipts provided by the disposal facility
5. Certification of Final Disposal signed by the responsible disposal facility official.

1.6 PRE-CONSTRUCTION MEETING

A. A Pre-Construction Meeting shall be scheduled by the Owner/Construction Manager and must be attended by the HMAC and any Sub-Contractors. The assigned Site Supervisor(s) must also attend this meeting.

B. A working schedule for each phase of work shall be presented by the HMAC at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed and the Owner/Construction Manager will inform the HMAC of additions or changes in the scheduling requirements for the project.

C. All aspects of the PCB Remediation Plans, Drawings, and SIP shall be reviewed at the pre-construction meeting.

1.7 APPLICABLE STANDARDS AND REGULATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply. The Owner's Consultant will determine which requirements are most stringent.

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
   a. ANSI.Z89.1 Personnel Protective Equipment-Protective Headwear for Industrial Workers-Requirements (Latest Revision)ANSI.Z87 CODE OF FEDERAL REGULATIONS (CFR)U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
   a. 29 CFR Subpart D Walking-Working Surface
   b. 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
   c. 29 CFR 1910.134 Respiratory Protection Standard
   d. 29 CFR 1910.1200 Hazard Communication
   e. 29C FR 1926.20 General Health and Safety Provisions
   f. 29CFR 1926.57 Ventilation
   g. 29 CFR 1926.59 Hazard Communication Program
   h. 29 CFR 1926.62 Lead Exposure in Construction
   i. 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response
   j. 29 CFR 1926.95 Criteria for Personal Protective Equipment
   k. 29 CFR 1926, Subpart H Materials Handling, Storage, Use and Disposal
   l. 29 CFR 1926, Subpart L Scaffolding
   m. 29 CFR 1926, Subpart M Fall Protection
   n. 29 CFR 1926, Subpart X Ladders
   o. 29 CFR 1926, Subpart Z Toxic and Hazardous Substances

3. U.S. ENVIRONMENTAL PROTECTION AGANECY (US EPA)
   a. 40 CFR 50.6 National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
   b. 40 CFR 260 Hazardous Waste Management System: General
   c. 40 CFR 261 Identification and Listing of Hazardous Waste
   d. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
   e. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
   f. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
   g. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
   h. 40 CFR 268 Land Disposal Restrictions
   i. 40 CFR 700 Toxic Substances Control Act (TSCA)
   j. 40 CFR 761 PCBs Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

4. U.S. DEPARTMENT OF TRANSPORTATION (DOT)
   a. 49 CFR 105 Hazardous Materials Program. Definitions and General Procedures
   b. 49 CFR 171 General Information, Regulations and Definitions
   c. 49 CFR 172 Hazardous Material Tables. Special Provisions, Hazardous Materials Communications Emergency Response Information and Training Requirements
   d. 49 CFR 173 Shippers-General Requirements for Shipments and Packaging
   e. 49 CFR 177 Carriage by Public Highway

f. 49 CFR 178 Specifications for Packaging

5. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
   a. Publication Number 87-10B Respiratory Decision Logic NIOSH/OSHA Booklet 3142 Lead in Construction
   b. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

6. U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
   a. PUB 3126 Working with Lead in the Construction Industry
   b. 29 CFR 1910, Subpart I, Appendix B-Non-Mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

7. REGULATIONS OF CONNECTICUT STATE AGENCIES (RCSA)
   a. Hazardous Waste 22a-449(c)-100 through 119
   b. Hazardous Waste Transporter Permits 22a-449(c)-11
   c. Permit Fees for Hazardous Waste Materials Management 22a-454-1

8. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY GUIDANCE
   a. Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act

1.8 POSTING AND RECORD MAINTENANCE REQUIREMENTS

A. The following items shall be conspicuously displayed proximate to but outside of abatement work areas. The HMAC shall assure that the posted regulations are not altered, defaced or covered by other materials.

B. Exit Routes

1. Emergency exit procedures and routes

C. Emergency Phone Numbers

1. A list Indicating the telephone numbers and locations of the local hospital(s); the local emergency squad; the local fire department; the local police department; the Poison Control Center; Chemical Transportation Emergency Center (CHEMTREC); the Connecticut State Department of Public Health's office; the HMAC (on-site and after hours numbers); and the environmental consultant (on-site and after hours numbers).

D. Warning Signs

1. Warning signs shall be posted in English and in the language of any workers on-site who do not speak English, and be of sufficient size to be clearly legible and display the following:

WARNING:
HAZARDOUS WASTE WORK AREA
PCBs-POISON
NO SMOKING, EATING OR DRINKING
AUTHORIZED PERSONNEL ONLY
PROTECTIVE CLOTHING IS REQUIRED IN THIS AREA

E. Items Available On-Site

1. The HMAC shall maintain the following items on-site and available for review by all employees and authorized visitors:
   a. The HMAC's Work Plan
   b. The HMAC's Disposal Plan
   c. The Project Health and Safely Plan (HASP)
   d. Certificates of Training for all workers and the project Supervisor
   e. Copies of applicable codes, standards, and publications
   f. Safety Data Sheets (SDS) for all chemicals used during the project.
   g. Copies of the HMAC's written hazard communication, respiratory protection, and confined space entry programs.

1.9 WORK AREAS

A. The HMAC shall establish and clearly identify work areas in the field. Access by equipment, site personnel, and the public to the work areas shall be limited as follows:

1. Abatement Zone - The Abatement Zone(s) shall consist of all areas where remediation, waste handling and staging activities are ongoing and the immediately surrounding locale or other areas where contamination could occur. Outdoor Abatement Zones shall be visibly delineated with orange construction fencing at a minimum, and restricted from access by all persons except those directly necessary to the completion of the respective remediation tasks. Indoor Abatement Zones shall be delineated with isolation barriers consisting of two (2) layers of six (6) mil polyethylene sheeting over all openings into work area and restricted from access by all persons except those directly necessary to the completion of the respective remediation tasks. The HMAC shall create pressure differential between the Indoor Abatement Zones and non-abatement areas by the use of acceptable negative air pressure equipment. The Abatement Zones shall be relocated and delineated as necessary as work progresses from one portion of the project site to another, to limit access to each remediation area and to minimize risk of exposure to site workers and the general public. Access shall be controlled at the periphery of the Abatement Zones to regulate the flow of personnel and equipment into and out of each zone and to help verify that proper procedures for entering and exiting are followed. All persons within the Abatement Zones shall have all required training and wear the appropriate level of protection established in the HASP.
2. Decontamination Zone - The Decontamination Zone is the transition zone between the remediation area and the "clean" Support Zone, and is intended to reduce the potential for contaminant dispersal from the Abatement Zone to clean areas of the site. The Decontamination Zone shall consist of a buffer area surrounding each Abatement Zone through which the transfer of equipment, materials, personnel and containerized waste products will occur and in which decontamination of equipment, personnel, and clothing will occur, The Decontamination Zones shall be clearly delineated with orange construction fencing at a minimum and labeled with signage as provided in Part 1.6 of this Section. All emergency response and first aid equipment shall be readily maintained in these Zones. All protective equipment and clothing shall be removed or decontaminated in the Decontamination Zone prior to exiting to the Support Zone.

3. Support Zone - The Support Zone will consist of the area outside the Decontamination Zones and the remainder of the project site. Administrative and other support functions and any activities that by nature need not be conducted in the Abatement or Decontamination Zone related to the project shall occur in the Support Zone. Access to the Abatement and Decontamination Zones shall be controlled by the Health and Safety Officer and limited to those persons necessary to complete the remediation work and who have reviewed and signed the HASP.

1.10 PERSONAL PROTECTIVE EQUIPMENT

A. The HMAC shall be responsible to determine and provide the appropriate level of personal protective equipment in accordance with applicable regulations and standards necessary to protect the HMAC's employees and the general public from all hazards present.

B. The HMAC shall provide all employees with the appropriate safety equipment and protective clothing to ensure an appropriate level of protection for each task, taking into consideration the chemical, physical, ergonomic and biological hazards posed by the site and work activities.

C. The HMAC shall establish criteria for the selection and use of personal protective equipment (PPE) in the HASP.

D. The PPE to be utilized for the project shall be selected based upon the potential hazards associated with the project site and the work to be performed. Appropriate protective clothing shall be worn at all times within the Abatement Zone.

E. The HMAC shall provide the appropriate level of respiratory protection to all field personnel engaged in activities where respiratory hazards exist or there is a potential for such hazard to exit.

F. The HMAC shall provide, as necessary, protective coveralls, disposable gloves and other protective clothing for all personnel that will be actively involved in abatement activities or waste handling activities or otherwise present in the Abatement Zones. Coveralls shall be of Tyvek or equivalent material. Should the potential for exposure to liquids exist, splash-resistant disposable suits shall be provided and utilized.

G. Protective coveralls, and other protective clothing shall be donned and removed within the Decontamination Zone and shall be disposed of at the end of each day. Ripped coveralls shall be immediately replaced after appropriate decontamination has been completed to the satisfaction of the Health and Safety Officer. Protective clothing shall not be worn outside of the Decontamination Zone.

H. Hard Hats, protective eyewear, rubber boots and/or other non-skid footwear shall be provided by the HMAC as required for workers and authorized visitors, Safety shoes and hard hats shall be in conformance with ANSI Z89.1 (1969) and ANSI 241.1 (1967), respectively.

I. All contaminated protective clothing, respirator cartridges and disposable protective items shall be placed into proper containers to be provided by the HMAC for transport and proper disposal in accordance with 40 CFR 262.

1.11 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

A. The HMAC shall provide and maintain at the site, at a minimum, the following Emergency and First Aid Equipment:

1. Fire Extinguishers.-a minimum of one (1) fire extinguisher shall be supplied and maintained at the site by the HMAC throughout the duration of the project. Each extinguisher shall be a minimum of a 20-pound Class ABC dry fire extinguisher with Underwriters Laboratory approval per 29 CFR 1910.157.
2. First Aid Kit-a minimum of one (1) first aid kit meeting the requirements of 29 CFR 1910.151 shall be supplied and maintained at the site by the HMAC throughout the duration of the project.
3. Communications (either cellular or radio) shall be provided by the HMAC for use by site personnel at all times during the project.

B. The Health and Safety Officer shall be notified immediately in the event of personal injury, potential exposure to contaminants, or other emergency. The Health and Safety Officer shall then immediately notify the Owner's Consultant of same.

C. If a member of the work crew demonstrates symptoms of heat or cold stress, injury, chemical exposure or other similar issue, another team member present within the delineated Abatement Zone (i.e., suitably equipped with appropriate PPE provisions) should remove the affected person from the delineated work site and signal/communicate to the Health and Safety Officer of the incident. Precautions should be taken to avoid exposure of other individuals to contaminated media.

D. An evaluation of the person's condition shall be made by the Health and Safety Officer, to determine the appropriate course of action to administer first aid or other emergency response provision. The Health and Safety Officer shall assess the seriousness of the injury, give first aid treatment if appropriate, and arrange for appropriate emergency response from outside emergency services, it warranted.

E. If soiled clothing cannot be removed, the injured person will be wrapped in a blanket while transported from the site.

F. The Health and Safety Officer shall monitor the affected person to determine whether there are symptoms resulting from the exposure or injury. If there is a visible manifestation of exposure such as skin irritation, the affected party shall be referred to a medical facility for treatment and evaluation as to whether the manifestation may be indicative of a delayed or acute exposure, a secondary response to exposure such as skin infection or occupational dermatitis. All incidents of injuries and/or obvious chemical exposure shall be evaluated by the Health and Safety Officer and the Owner's Consultant to determine whether modifications to work practices and/or protective provisions are warranted.

1.12 STANDARD SAFETY AND HEALTH PROCEDURES AND ENGINEERING CONTROLS

A. The following provisions shall be employed to promote overall safety, personnel hygiene and personnel decontamination:

1. Each HMAC or subcontractor shall ensure that all safety equipment and protective clothing to be utilized by its personnel is maintained in a clean and readily accessible manner at the site.
2. All prescription eyeglasses in use on this project shall be safety glasses conforming to ANSI Standard Z87.1. No contact lenses shall be allowed on the site.
3. Prior to exiling the delineated Decontamination Zone(s), all personnel shall remove protective clothing, and place disposable items in appropriate disposal containers to be dedicated to that purpose. Following removal of PPE, personnel shall thoroughly wash and rinse their face, hands, arms and other exposed areas with soap and tap water wash and subsequent tap water rinse. A fresh supply of tap water shall be provided at the site on each work day by the HMAC for this purpose.
4. All PPE used on site shall be decontaminated or disposed of at the end of each work day. Discarded PPE shall be placed in the appropriate waste stream.

5. Respirators, if necessary, shall be dedicated to each employee, and not interchanged between workers without cleaning and sanitizing.
6. Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the likelihood of hand to mouth contact shall be prohibited within the delineated abatement and decontamination work zones. Prior to performing these activities, each employee shall thoroughly cleanse their face, hands, arms and other exposed areas,
7. All personnel shall thoroughly cleanse their face, hands, arms and other exposed areas prior to using toilet facilities.
8. No alcohol, tobacco, illegal drugs, weapons, or firearms will be allowed on the site at any time.
9. All personnel that are on non-prescription (i.e., over-the-counter) or prescription medication of any kind shall notify the Health and Safety Officer prior to conducting work at the site. The Health and Safety Officer will make a determination as to whether such individuals will be allowed to work on the site, and, if so, in what capacity. The Health and Safety Officer may require signed documentation from the Individual's personal physician stating what limitations may be posed by the medication or condition that may apply to that individual's work activities.
10. Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud or other wet or discolored surfaces; kneeling on ground; and placing equipment, materials or food on ground or other potentially contaminated surface.
11. The use of the "Buddy System'` shall be employed at all times while conducting work at the site. Each employee shall frequently monitor other workers for signs of heat stress or chemical exposure or fatigue; periodically examine others PPE for signs of wear or damage; routinely communicate with others; and notify the Site Safety Officer in the case of an emergency.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating six (6) mil.

D. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

E. All proper labeling and placards for waste receptacles shall be maintained on site in a sufficient quantity to support the project.

F. Orange construction fence and sufficient fence posts/stakes shall be maintained on site in a sufficient quantity to support the project.

G. Tenax wind screens shall be maintained on site in a sufficient quantity to support the project.

H. Ground cover shall be construction tarps 14 x 14 weave and a 12 mil thickness at a minimum and maintained on site in a sufficient quantity to support the project.

I. Drain sleeves, hay bales, and other storm water control supplies shall be maintained on site in a sufficient quantity to support the project.

J. Non-chlorinated organic solvent.

K. Appropriate labels and signage.

L. Appropriate waste containers.

2.2 TOOLS AND EQUIPMENT

A. Provide suitable tools for PCB removal.

B. The HMAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The HMAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The HMAC shall provide temporary electrical power sources such as generators (when required).

E. Vacuum units and negative pressure exhaust fans of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 SEQUENCE OF SITE WORK

A. The HMAC shall coordinate all remediation and disposal activities with the Building Owner (or Owner's Representative) and the General Contractor.

B. The sequence of the site work is anticipated as follows:

1. It is the intent of the Owner, the Town of North Stonington, to commence the PCB remediation in the summer of 2019.

C. If there will be changes to the initial schedule or sequencing, the HMAC shall inform the Owner's Consultant in writing and confirm all dates on submitted schedules.

D. The HMAC shall coordinate all work with the General Contractor and confirm weatherization requirements of the building following remediation activities.

3.2 PREPARATION OF ABATEMENT ZONES FOR PCB REMEDATION

A. The Site shall be restricted to authorized personnel with chain link fencing.

B. The remediation of interior PCB-containing materials will be addressed in the HMAC's Work Plan.

C. The HMAC shall establish Abatement Zones, Decontamination Zones, and Support Zones in accordance with this Specification.

D. Preparation of PCB-Negative Pressure Enclosure (PCB-NPE)

1. A PCB-negative pressure enclosure will be required for the following:
   a. Abrasive blasting, cutting, or grinding of PCB-containing materials
   b. Torch, electric, or plasma cutting of PCB-containing materials
   c. Manual demolition of PCB-painted masonry prior to building demolition
   d. Manual removal of asbestos and PCB containing chalkboard, tack board and mirror adhesives
2. HMAC shall coordinate demolition and enclosure preparation with additional requirements identified within Section 020750 Selective Demolition for Hazardous Materials Abatement and Section 020800 Asbestos Abatement.
3. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.
4. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s). Under no circumstances during ceiling demolition will lighting fixtures be permitted to be energized.
5. Shut down and isolate heating, cooling, and ventilation air systems to prevent contamination or particle dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.
6. Seal off all openings, including but not limited to operable windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with two (2) layers polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. In addition to the polyethylene sheeting, place hard barriers at doorways and corridors which will not be used for passage between Abatement Zones and non-abatement areas. Seal all floor drains.
7. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.
8. Create pressure differential between Abatement Zones and non-abatement areas by the use of acceptable negative air pressure equipment. The HMAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.
9. Post all approaches to each work area with PCB Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

E. General Demolition and Remediation: PCB-Negative Pressure Enclosures (PCB-NPEs) will not be required in the Abatement Zones for the remediation of PCB-containing materials other than those described in Section 3.2(D) above and exterior work areas.

1. All approaches to work areas shall be restricted with barriers (i.e. orange construction fencing) properly posted with signage.
2. The HMAC shall establish the Abatement Zone, Decontamination Zone and Support Zone in accordance with this Specification. The boundaries of the three (3) zones shall be designated and segregated by orange construction fencing and posted with proper signage at a minimum.
3. Weather screens shall be constructed to prevent the dispersion of particulate or debris due to wind or rain. The construction and placement of the weather screens shall be addressed in the HMAC's Work Plan.

4. Ground cover and erosion controls shall be established to prevent the migration of remediation dust or debris due to water from rain or remediation activities. The construction and placement of the ground cover and erosion controls shall be addressed in the HMAC's Work Plan.
5. Catch basins shall be sealed to prevent solids or liquids from entering.

3.3 PREPARATION OF DECONTAMINATION ZONES

A. Preparation of Contiguous Personnel Decontamination System

1. The HMAC shall establish contiguous to each Abatement Zone, where feasible, a personnel decontamination system consisting of equipment room, shower room and clean room in series. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers shall be clean and not showing signs of wear or deterioration. Metal shower surrounds shall be required for this project.
2. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.
3. The shower unit shall be equipped with an adequate supply of warm water. Shower waste water shall be captured into fifty-five gallon drums or other suitable containers for waste profiling and disposal.
4. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

B. Preparation of Remote Personnel Decontamination System

1. In instances where construction of a contiguous decontamination facility is not feasible, the HMAC shall establish a remote personnel decontamination system. Access routes between the Abatement Zone and the shower shall be secured and restricted to authorized personnel and protected from contamination. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting.
2. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed.
3. The shower unit shall be equipped with an adequate supply of warm water. Shower waste water shall be captured into fifty-five gallon drums or other suitable containers for waste profiling and disposal.
4. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.
5. When a remote personnel decontamination system will be utilized, a minimum of two (2) chambers shall be constructed contiguous to each Abatement Zone and be equipped with a HEPA vacuum and clean protective clothing.

C. Preparation of Waste Load Out Systems

1. The HMAC shall establish waste load out systems, where feasible, contiguous to Abatement Zones. Waste load out systems shall consist of a minimum of two (2) chambers that are of suitable size for transporting waste out of the work area. Waste load out systems shall be constructed of two layers of six-mil polyethylene sheeting.
2. Access between rooms in the waste load out system shall be through double flap-curtained

openings. The waste load out system shall be used for decontaminating waste containers, bags, bundles, etc. prior to removal from the work area and transporting waste from the work area to the non-work area.

3. Persons working inside the contaminated work area are not permitted to pass from the work area to the non-work area through the waste load out system. Persons inside the contaminated work area shall not be permitted to enter into the clean area of the waste load out system.
4. The waste load out system shall remain sealed at all times except during decontamination of waste containers and transport of waste from the work area to the non-work area.
5. Appropriate PCB waste containers shall be placed adjacent to Abatement Zones. Containers shall be lined, labeled, covered and secured.
6. Decontamination of all non-disposable equipment and tools employed in the course of the project will be performed in accordance with §761 Subpart S prior to removal from the enclosure system.
7. Liquid wastes generated as a result of the decontamination procedures shall be collected in fifty-five (55) gallon steel drums for treatment or incineration in accordance with §761.60.

3.4 PREPARATION OF SUPPORT ZONES

A. Establish orange construction fence to delineate the Support Zone from unrestricted areas and post with applicable warning signs. Establish one (1) point of access into the Support Zone where the work area access log will be maintained.

B. Each work area shall contain an access log in order to maintain a list of personnel accessing the work area. Each person entering and exiting the work area shall sign the access log.

3.5 REMEDIATION PROCEDURES - GENERAL

A. Wind screens shall be of construction quality, commercial Tenax at a minimum and secured to withstand adverse weather conditions.

B. Ground cover shall be construction tarps 14 x 14 weave and a 12 mil thickness at a minimum and staked securely into place.

C. Work shall be performed using appropriate engineering controls including HEPA filter equipped tools and misting to prevent exposure from the work and migration of contaminants.

D. All debris generated during operations including but not limited to visible caulking, dust and debris shall be HEPA vacuumed continuously throughout the work shift and at the end of the work shift to avoid accumulation. Any tears or rips that occur in polyethylene barriers or ground covers shall be repaired or removed and replaced with new protections.

E. Ladders, scaffolding, or lifts utilized in the remediation shall be properly decontaminated as addressed in the HMAC’s work plan prior to removal from the work area.

F. Abrasive actions performed on contaminated materials and masonry shall not be allowed outside of a PCB-NPE. All equipment utilized to perform abrasive actions of shall be equipped with appropriate dust collection systems.

G. All working surfaces of tools and equipment that contacts contaminated material shall be decontaminated using the methods prescribed by §40 CFR 761 Subpart S prior to removal from the regulated area.

3.6 GENERAL DEMOLITION

A. The HMAC shall establish the Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to the remediation of window systems and door systems.

B. Prior to demolition, the HMAC shall assure that the asbestos-containing materials addressed in Specification 020800Asbestos Abatement have been removed.

C. General demolition will include remediation of all walls and partitions, mastics, adhesives, paints, caulks, glazing compounds, doorframes, and window and door lintels as for disposal as PCB Bulk Product Waste.

D. A PCB-NPE shall be required during the removal of all painted wall systems in conjunction with wall demolition to access asbestos containing materials and the removal of asbestos containing adhesives.

E. General demolition will include remediation of the fiberboard roof deck from the 1950 Building for disposal PCB Remediation Waste greater than fifty (50) ppm.

F. General demolition will include remediation of painted structural steel for disposal as Connecticut Regulated Waste.

G. The HMAC shall materials with water to control dust prior to and during removal. Materials shall be removed and immediately containerized for disposal.

H. Position staging areas and waste transport areas in clean locations adjacent to the demolition to minimize waste transport and waste handling.

I. Demolition debris, including any and all materials contaminated by the demolition procedures shall be disposed of as PCB Bulk Product Waste.

3.7 FLOOR TILE MASTIC AND ADHESIVE REMEDIATION

A. Prior to the removal of adhesives and mastics, the HMAC shall assure that the asbestos-containing materials addressed in Specification 020800 Asbestos Abatement have been removed.

B. The HMAC shall establish the Indoor Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to any interior demolition and prior to the remediation of window systems and door systems.

C. The HMAC shall remove the vinyl floor tile from the 1960 Addition and dispose of it as CR01. All floor coverings including vinyl tile in the Abatement Zones shall be removed and disposed of.

D. The HMAC shall grind or blast flooring mastics and adhesives from the specified locations and concrete slab.

E. Position staging areas and waste transport areas in clean locations adjacent to the Decontamination Zone to minimize waste transport and waste handling.

F. Floor coverings, adhesives, shot blast, grinding dust and all materials contaminated by the cleanup procedures shall be disposed of as CR01.

3.8 PAINT REMEDIATION

A. The HMAC shall establish the Indoor Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to the remediation of window systems and door systems.

B. The HMAC shall clean PCB-containing paint from the concrete walls, floors, and ceilings in the 1950 Building boiler room. Prior to paint cleanup, the HMAC shall assure that the asbestos-containing materials addressed in Specification 020800 Asbestos Abatement have been removed.

C. Prior to paint removal, the HMAC shall establish the Indoor Abatement Zone, Decontamination Zone, and Support Zone and PCB-NPEs in accordance with this Specification prior to interior demolition. Additionally, the HMAC may install drop cloths to facilitate the cleanup of blasting or grinding debris. The HMAC shall confirm all floor drains and penetrations are properly sealed.

D. The HMAC shall blast or grind the paint from the surfaces of the concrete.

E. Position staging areas and waste transport areas in clean locations adjacent to the demolition to minimize waste transport and waste handling.

F. Paint, shot blast, grinding dust and, any and all materials contaminated by the paint cleanup procedures shall be disposed of as CR01.

3.9 WINDOW SYSTEMS REMEDIATION

A. The HMAC shall establish the Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to the remediation of window systems and door systems.

B. The entire window systems including caulk, interior and exterior cement board panels, metal panels, and the entire brick veneer shall be removed from the 1960 Addition and disposed of as PCB Bulk Product Waste and regulated Asbestos.

C. Prior to removing window systems, the HMAC may remove operable sashes from window openings for disposal as PCB Bulk Product Waste and Regulated Asbestos Waste. The HMAC shall wrap and seal sashes from the 1960 Addition with two (2) layers of six mil polyethylene sheeting for transport to the waste receptacle and for disposal as PCB Bulk Product Waste.

D. The HMAC shall mist caulk lines and masonry with water to control dust prior to window system removal.

E. The HMAC shall remove fasteners from window frames to facilitate removal of the frames. Where necessary, cut frames into manageable sections.

F. The HMAC shall remove specified masonry from window openings. If abrasive cutting procedures are used, then cutting tools shall be equipped with shrouds and attached to a HEPA filtered vacuum system. Cutting shall be done outside of the delineated contaminated masonry.

3.10 HARDSCAPES AND SOILS

A. No soil containing PCB in excess of one (1) ppm PCB was identified at the Site. If soil becomes contaminated as a result of remediation, abatement, or demolition, the HMAC shall use the following procedures to for clean up and disposal at no additional cost to the Owner.

B. The HMAC shall establish the Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to the remediation of PCB contaminated hardscapes and soils.

C. The HMAC shall under no circumstance allow the operation of heavy equipment on PCB contaminated hardscapes or soils.

D. During removal, the HMAC shall lightly mist hardscapes and soils with water to control emissions.

E. The HMAC shall avoid tracking back over remediated areas.

F. The HMAC shall immediately containerize asphalt, concrete, and soil. Stockpiling shall not be allowed.

G. All working surfaces of tools and equipment that contacts contaminated hardscapes or soils soil shall be decontaminated using the methods prescribed by §40 CFR 761 Subpart S prior to removal from the regulated area.

3.11 FINAL WORK AREA CLEANING

A. Upon completion of remediation and removal of tools, waste, and supplies from each work area, the HMAC shall use wet wiping and HEPA vacuuming methods to remove all visible dust and debris from all surfaces within the abatement and decontamination zones.

B. Upon completion of the final work area cleaning, a visual inspection shall be conducted by the HMAC's Ste Supervisor for visible evidence of residual PCB product and dust and debris. Following the Site Supervisor's visual inspection, the Owner's Consultant shall perform a final visual inspection of the work area. The visual inspection shall provide verification that remediation work has been completed in accordance with the SIP and this specification.

C. Any surface exhibiting evidence of contamination, dust or debris, or incomplete abatement of specified PCB-containing materials shall be re-cleaned by the HMAC at no cost to the Owner.

3.12 ON-SITE WASTE MANAGEMENT

A. SOLID WASTES

1. All solid waste materials, used containment barriers, personnel protective equipment, and other solid wastes generated during the work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of roll-off containers or CTDOT-approved 55-gallon barrels.
2. If roll-off containers are to be utilized for containerization of the remediation wastes, the following shall apply:
    a. All roll off containers or other similar vessels utilized shall be leak tight and lined with six (6)-mil polyethylene sheeting or equivalent impermeable lining, and equipped with a secured and impermeable cover.
    b. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The HMAC shall be responsible for ensuring that the cover remains securely intact until the container is removed from the site.
3. If 55-Gallon barrels are to be utilized for waste containerization, the barrels shall consists of suitable DOT-approved 55-gallon barrels that are watertight and free of corrosion, perforations, punctures, or other damage. All barrels shall have ring lock lids and shall be sealed at the conclusion of each workday. The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.

5. A waste roll-off and barrel staging area shall be designated prior to initiation of the remediation work, and approved by the Owner's Consultant.
6. PCB Waste at any concentration (but not including decontamination materials) shall be stored in compliance with the time constraints, container, inspection, and labeling requirements, and all other requirements set forth in §761.65. On-site temporary storage of PCBs shall be limited to thirty (30) days per §761.65(C)(1).

B. DECONTAMINATION FLUIDS AND LIQUID WASTE MATERIALS

1. All working surfaces of tools and equipment that contacts contaminated materials shall be decontaminated using the methods prescribed by §40 CFR 761 Subpart S.
2. Liquid Wastes generated as a result of the PCB remediation and equipment decontamination shall be profiled and burned in a high temperature incinerator in accordance with §761.60 or managed (treated) in accordance with §761.60 if necessary.
3. Under no circumstances shall decontamination fluids or liquid wastes be discharged to the ground surface or subsurface at the site.
4. Liquid materials, including equipment or personal decontamination fluids or similar liquids generated during work at the site shall be placed directly into appropriately sized and sealed vessels immediately upon generation.
5. Acceptable vessels for the storage of liquid wastes may include DOT approved 55-gallon barrels, steel or polyethylene tanks, fractioning tanks or tank trucks. All proposed vessels shall be compatible with the intended liquid contents.
6. Container staging areas shall be designated prior to initiation of the removal work and approved by the Owner's Consultant.
7. All storage vessels to be used in the containerization and transportation of liquid waste materials shall be free of corrosion, perforations, punctures or other condition that may impair its ability to securely contain liquid.
8. Temporary staging of liquid waste vessels at the site shall be in a manner that will prevent freezing of contained liquids. Should the potential exist for liquid containers to freeze during exterior storage at the site, arrangements shall be made with the Owner's Consultant to identify and utilize an appropriate alternate storage location acceptable to the Owner's Consultant.
9. All liquid storage vessels utilized and staged at the site shall be stored in an area on the property that will not interfere with facility operations or normal flow of vehicle or pedestrian traffic, and in a manner that will minimize the potential for tipping, vandalism or damage by vehicular traffic.
10. All characterization of waste, testing, analytical fees for disposal purposes shall be borne by the HMAC.

C. LABELING OF WASTE CONTAINERS

1. All waste containers and temporary waste storage areas shall be labeled in accordance with §761.40 and §761.45.
2. All waste containers shall be posted with signage indicating the disposition of the waste (i.e. "PCB Bulk Product Waste, PCM Remediation Waste less than 50 ppm, etc.).
3. All waste containers must be labeled with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred.
4. All waste containers containing caulk or caulk debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the remediation work shall be labeled as follows:

HAZARDOUS WASTE-Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority or the
U.S. Environmental Protection Agency.

Generator's Name: _____

_____

Manifest Document No.:_____

5. Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; un-obscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.13 WASTE TRANSPORTATION AND DISPOSAL

A. All waste packaging, labeling and transportation activities shall be performed in accordance with applicable State of Connecticut and US Department of Transportation Regulations at 49 CFR Parts 171, 172, 173, 177, and 178, and any and all other applicable federal, state and local laws and regulations.

B. All hazardous wastes shall be shipped using state-specific standard manifest documents. The HMAC shall supply and complete the manifest documents in accordance with all applicable state and federal regulations. All manifest documents shall be signed by a representative of the Owner and appropriate copes shall be provided to the Owner's representative prior to removing the waste from the site.

C. The HMAC or their designated waste disposal subcontractor providing waste transportation services shall possess a valid Waste Hauler's Permit issued by the State of Connecticut Department of Energy and Environmental Protection (CTDEEP). In addition, if the waste is to be transported and disposed of out of Connecticut State, applicable permits for those states or territories through which the waste will be transported and for where it will be disposed will be required. It is the responsibility of the HMAC to identify the appropriate disposal facility and associated travel route(s) and to identify the pertinent permits that will be required and to provide copies of the applicable permits to the Owner’s Consultant prior to removing the waste from the site.

D. The HMAC shall be responsible for applying for, obtaining and payment of all permits and temporary hazardous waste generator identification numbers to support the project.

3.14 CERTIFICATION OF REMEDIATION WORK

A. The HMAC shall certify in writing to the Owner’s Consultant that all remediation work and waste disposal has been completed in accordance with this specification and all applicable federal and state regulations.

B. The HMAC shall certify in writing to the Owner’s Consultant that each piece of equipment used in the Abatement Zones or which has come in or potential come into contact with PCB-contaminated material has been decontaminated in accordance with 40 CFR 761 Subpart S prior to removal from the site.

3.15 POST REMEDIATION VERIFICATION

A. Following the completion of the removal of PCB Bulk Product Waste, Remediation Waste, and Connecticut Regulated Waste, the Owner’s Consultant shall implement the following verification sampling using procedures modified from 40 CFR 761 Subparts O and P.

B. Upon completion of remediation in each area, a visual inspection shall be conducted for visible evidence residual PCB product and dust and debris. The visual inspection shall provide verification that remediation work has been completed in accordance with the SIP and this specification.

C. Verification bulk samples of concrete will be collected using USEPA Region 1 Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011.

D. Bulk samples of concrete where flooring mastics and adhesives were removed from the 1960 Addition will be collected randomly at a frequency of one (1) sample per (previously existing) room for an approximate total of sixteen (16) samples.

E. Bulk samples of concrete where paints were removed from the 1950 Building basement will be collected randomly at a frequency of two (2) samples per wall, ceiling, and floor for an approximate total of twelve (12) samples.

F. Screening of remaining soil within and adjacent to the building footprint will be conducted after demolition and cleanup. Composite soil samples will be collected in accordance with the protocols set forth in Section 2.1.3 of the SIP. It is anticipated that as many as eighty-five (85) samples may be required to screen the soil remaining at the Site.

G. Quality Control duplicate samples will be collected at a frequency of five (5) percent.

H. The criteria for successful verification shall be one (1) ppm PCB or less. If any location exceeds this clearance objective, the owner's consultant will discuss additional remedial actions for additional removal and disposal of materials.

I. Samples will be analyzed at Phoenix Environmental Laboratories, Inc. located in Manchester Connecticut. PCB will be extracted from samples using USEPA Extraction Method 3540C and analyzed using EPA method SW846 8082.

END OF SECTION 028400

ATTACHMENT 1

ALTERNATIVE WORK PRACTICE APPLICATION

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

APPLICATION FOR ALTERNATIVE WORK PRACTICES

STATE USE ONLY	
Date Received	
Check #	
Trans #	
Entered	

Please provide the following information as required by the Regulations of Connecticut State Agencies, Section 19a-332a-11. Be sure to note if there are any attachments. An incomplete application will result in a delayed response.

1. PROJECT DESIGNER INFORMATION

Date of Application	June 20, 2017				
Name of Project Designer	John Terrill				
License #	000279	License Expiration Date	1/31/2018	Phone #	860-589-8257
Address	Eagle Environmental, Inc. - 8 South Main Street, Suite 3				
City, State, Zip Code	Terryville, CT 06786				
Signature	John Terrill				

2. PROPERTY INFORMATION

Facility Owner	Town of North Stonington		
Address	40 Main Street. North Stonington. Connecticut 06359		
Phone	860-535-2877	Contact Person	Mike Urgo, Chairman, Building Committee
Address of Facility	298 Norwich-Westerly Road		
City, State and Zip Code	North Stonington, Connecticut 06359		

3. ASBESTOS ABATEMENT CONTRACTOR INFORMATION *(IF KNOWN)*

Asbestos Abatement Contractor	To Be Determined	CT License #	
Address			
City, State Zip Code			
Phone		Contact Person	

4. PROJECT SUMMARY

Nature of Abatement		Renovation	☐	Demolition	☒	Both	☐		
Type of Asbestos Abatement		Removal	☒	Enclosure	☐	Encapsulation	☐	Spot Repairs	☐
Start Date (if known)	Summer of 2019								

Type and Amount of Asbestos Material Pertaining to AWP		(Use additional attachment if necessary) **fill in below**	
Floor Tile (FT²)	*Linoleum (FT²)*	*Transite (FT²)*	*Other Non-Friable (specify)*
			Window glazing compound (54 LF)
Window Caulking (LF)	*Pipe Insulation (LF)*	*Pipe Fittings (each)*	*Other Friable (specify)*
			TSI contaminated soil & piping 3800 SF

Phone: (860) 509-7367, Fax: (860) 509-7378
Telephone Device for the Deaf (860) 509-7191
410 Capitol Avenue - MS #51-AIR
P.O. Box 340308 Hartford, CT 06134
An Equal Opportunity Employer

5. DESCRIPTION OF FACILITY

Building Data	Size	22,800 SF	Age	67	Facility Use	Middle School
		Square Feet		*Estimate, if unknown*		

6. SPECIFIC ALTERNATIVE WORK REQUEST

Section(s) and Subsections of the Standards for Asbestos Abatement regulation for which alternative work practice(s) is/are proposed:

Please see attached

Description of Alternative Work Practice(s): Please provide additional information such as drawings, photographs, work plans or similar information in order to provide an accurate review. Please identify the specific work area/s of the facility.

Please see attached

DPH STAFF

Application Status

REVIEWED BY	DATE	APPROVED/ DENIED/ SET ASIDE

MAIL COMPLETED FORM TO:

DEPARTMENT OF PUBLIC HEALTH - EHS
410 CAPITOL AVE, MS# 51 AIR
PO BOX 340308
HARTFORD, CT 06134-0308

ALTERNATIVE WORK PRACTICE APPLICATION
WHEELER MIDDLE SCHOOL –TUNNEL ABATEMENT
298 NORWICH-WESTERLY ROAD
NORTH STONINGTON, CONNECTICUT
JUNE 28, 2017

Introduction

Eagle Environmental, Inc. (Eagle) conducted the hazardous building materials inspection at the Wheeler Middle School located at 298 Norwich-Westerly Road in North Stonington, Connecticut (Site) in preparation for the upcoming School Modernization Project (Project). The report, *Pre-Demolition Hazardous Building Materials Inspection Report, North Stonington Public Schools - Middle School, 298 Norwich-Westerly Road, North Stonington, Connecticut*, Eagle Project No. 16-027.13T3, was issued on December 30, 2016.

Asbestos containing thermal system insulation debris was identified on and in the dirt floor throughout the tunnel at the Site. Residual insulation is assumed present under the fiberglass insulation on the exposed mechanical system distribution piping within the tunnels. Steel-framed windows with asbestos-containing interior window glazing compound were also identified in the tunnel. The windows are below grade and will need to be abated from the inside of the tunnel.

Demolition of the building is scheduled to begin in the summer of 2019. The Site will be secured for the Project and no children will be allowed at the Site at the time of the abatement work. The Designer is requesting a review of the AWP now prior to issuing documentation for bidding but to suspend the issuance of the approval letter until the start of the project.

Estimated Quantities:
Area of decontamination – 3,800 SF
Windows – 6 EA

Requested Exemptions

For abatement of the TSI and windows in the tunnels, the designer requests exemption from the requirements of 19a-332a-5 (e) of the State of Connecticut Standard for Asbestos Abatement to facilitate cleaning of contaminated walls, floors, ceiling and pipes and to allow for access to the windows.

Following the installation of a worker decontamination unit and isolation barriers and establishing negative pressure within the tunnels, window sashes will be removed, window openings HEPA vacuumed and critical barriers installed. Drop clothes will be placed below the windows during removal. Following window sash removal, all fiberglass insulation will be removed and all pipes will be decontaminated. Drop clothes will be placed on the tunnel floor during fiberglass insulation removal and cleaning of pipes. At the completion of the cleaning of the pipes, drop clothes will be removed and disposed of as asbestos waste then tunnel walls, ceiling and floor shall be decontaminated.

Where soil contamination exists, the Contractor will remove the debris and contaminated soil. Contaminated soil will be wetted with amended water and manually shoveled or picked up and directly placed into six (6)-mil polyethylene disposal bags. The tunnels will be evaluated by a Project Monitor licensed by the State of Connecticut. Additional soil will be removed, if

required, following the evaluation.

WORK PROCEDURE

Work Area Preparation

A. The Contractor shall establish temporary electrical service, including receptacles sufficient to provide power and lighting within the work area(s). The Contractor shall use GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes.

B. The Contractor shall establish three-chamber a worker/equipment decontamination unit at the entrances to the tunnel. The exterior of select windows will be excavated to allow exhaust ports for the negative air exhausts (see Work Plan – Sheet No. AWP-1) or access holes will be cut into tunnel ceiling from the floor above. Asbestos abatement warning signs shall be posed in accordance with OSHA 29 CFR 1926.1101.

C. Mechanical system piping in the tunnel shall be shut down prior to installation of critical barriers. Critical barriers shall be placed over all penetrations into the tunnels except for the below grade windows.

D. HEPA filtered negative air exhaust fans shall be utilized to create a negative pressure differential in the tunnel with a minimum air exchange of four (4) per hour.

E. Work area access sign-in logs shall be maintained at the entrances to each work area. Each authorized person entering the enclosure shall don the appropriate personal protective equipment (PPE) and sign the work area access log each time the work area is entered. The entry and exit time shall be maintained on the access log.

Abatement Procedure

A. The Contractor shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout project. The Competent Person shall conduct a preliminary inspection of the work area(s) with the on-site hygienist to review the scope of work and work procedures.

B. Abatement work shall not commence until all work area preparation is completed in accordance with the approved Alternative Work Practice (AWP).

C. Window sashes shall be removed prior to the removal of any other materials within tunnels. Drop clothes shall be installed under windows.

D. Following window sash removal, window opening shall be decontaminated by HEPA vacuuming and wet wiping. Critical barriers shall be applied to window openings once clean.

E. A drop cloth shall be applied to floor of tunnel prior to removal of all fiberglass insulation.

F. Fiberglass pipe insulation shall be wetted prior to and during removal. Insulation shall be placed directly into six (6) mil poly bags and sealed for disposal and all exposed piping decontaminated.

G. Where soil contamination exists, the Contractor shall remove the debris and contaminated soil. Contaminated soil shall be wetted with amended water and manually shoveled or picked up and directly placed into six (6)-mil polyethylene disposal bags.

H. The tunnels will be evaluated by a Project Monitor licensed by the State of Connecticut following the HEPA vacuuming and wet wiping of all walls, ceilings and piping within tunnel. Additional soil and gravel will be removed, if required, following the evaluation.

I. A State of Connecticut Asbestos Project Monitor licensed by the Department of Public Health will conduct a TEM air clearance in accordance with AHERA protocol. Alternately, if it is determined that the tunnels will not be re-occupied, the tunnels will be secured and posted after successful visual clearance is achieved prior to the demolition of the building.

J. A State of Connecticut Asbestos Project Monitor licensed by the Department of Public Health will be on site full time to monitor the activities.

WHEELER MIDDLE SCHOOL
298 NORWICH-WESTERLY ROAD
NORTH STONINGTON, CONNECTICUT

TUNNELS **Eagle Environmental, Inc. No. 17-013.13T2**

Photo #1:	Tunnel

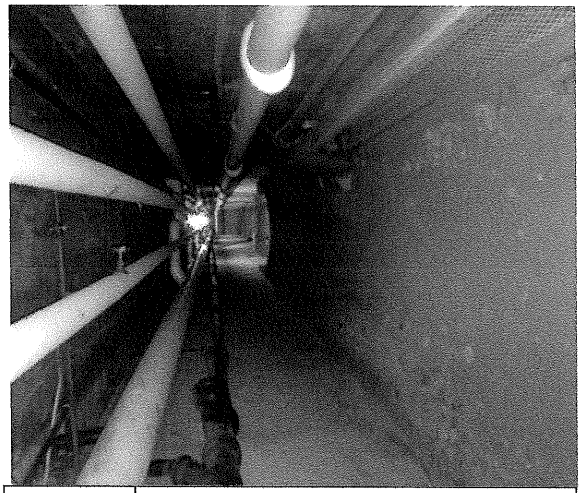


Photo #2:	Tunnel

Photo #3:	TSI debris on floor in tunnel

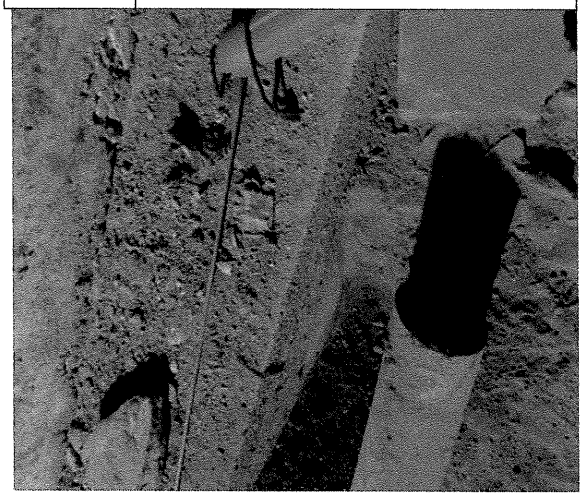


Photo #4:	TSI debris on floor in tunnel

Photo #5:	TSI debris on floor in tunnel

Photo #6:	TSI debris on floor in tunnel

WHEELER MIDDLE SCHOOL
298 NORWICH-WESTERLY ROAD
NORTH STONINGTON, CONNECTICUT

TUNNELS **Eagle Environmental, Inc. No. 17-013.13T2**

Photo #7:	TSI debris on floor in tunnel

Photo #8:	TSI debris on floor in tunnel

Photo #9:	Windows in tunnel

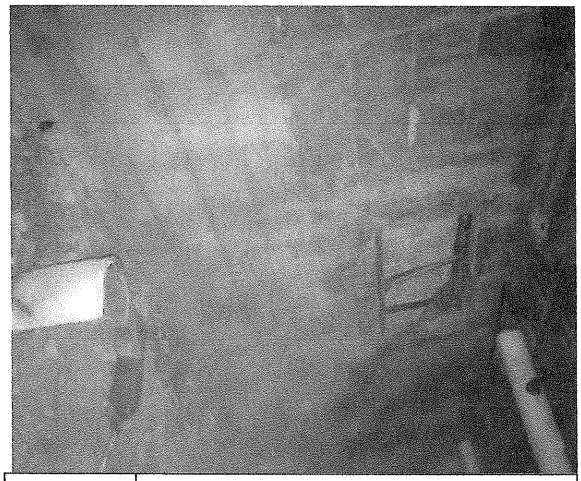


Photo #10:	Windows in tunnel

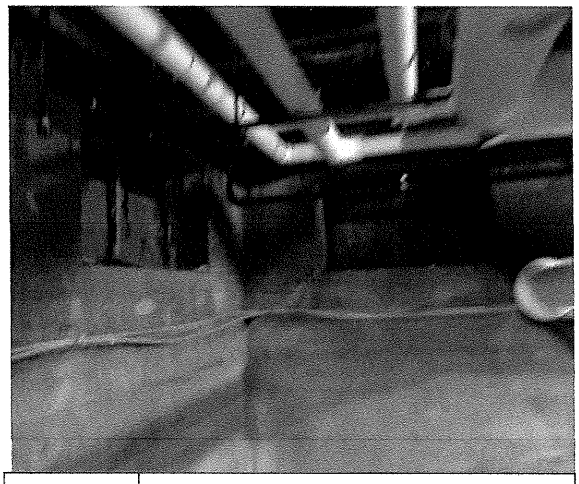


Photo #11:	Windows in tunnel

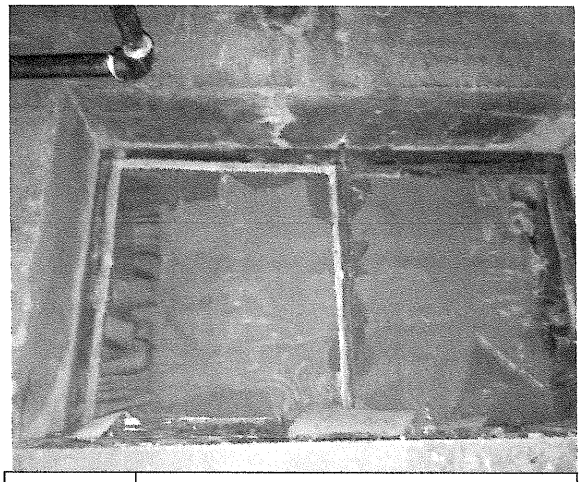


Photo #12:	Windows in tunnel

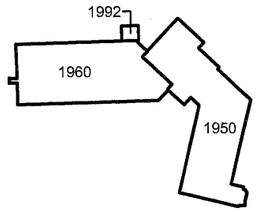
SIDE-C

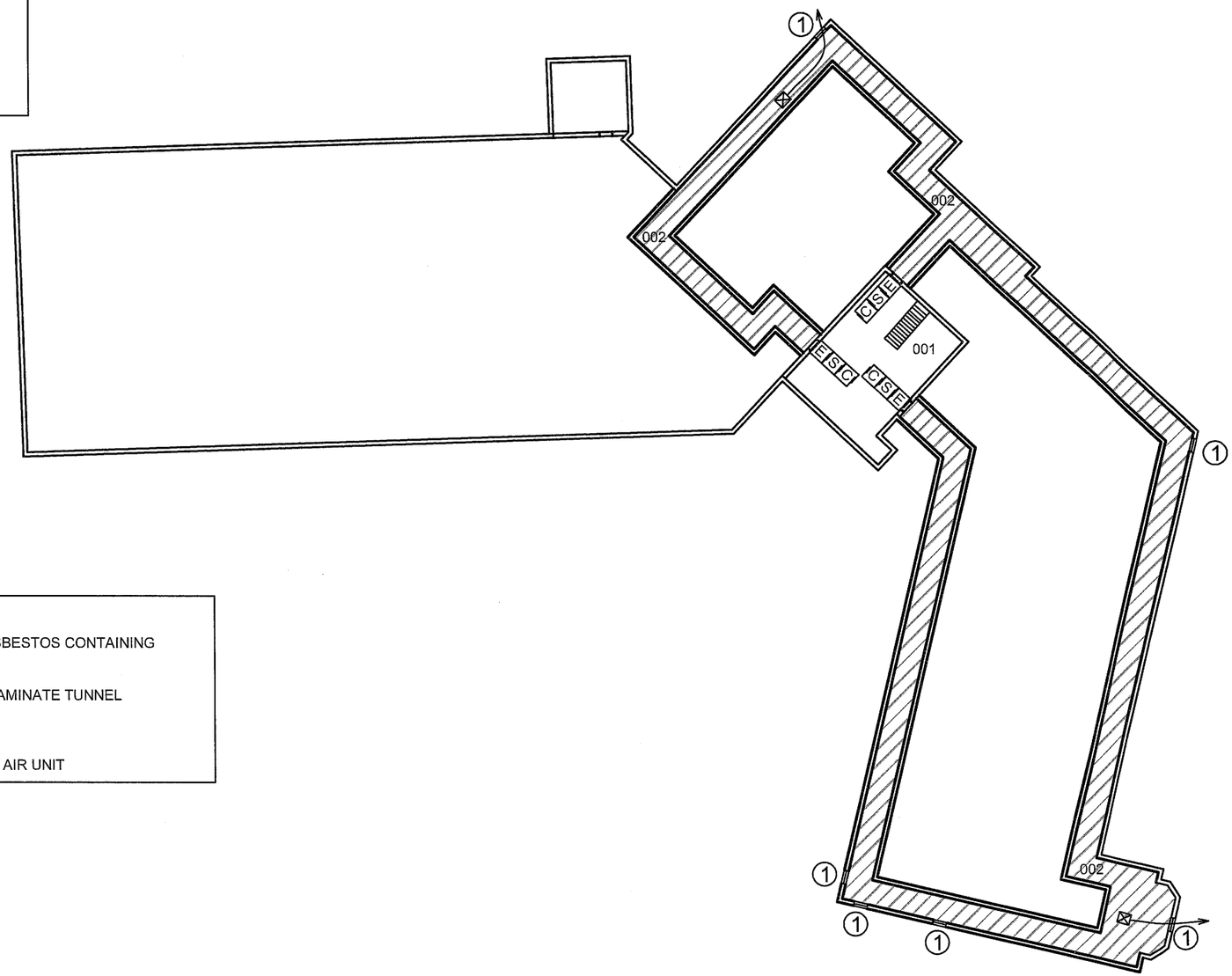
SIDE-B

SIDE-D

SIDE-A (STREET SIDE)

KEY PLAN - ADDITIONS BY YEAR





MAIN LEVEL
NOT TO SCALE

AWP KEY:

①	REMOVE WINDOW WITH ASBESTOS CONTAINING GLAZING COMPOUND
	REMOVE TSI AND DECONTAMINATE TUNNEL
E S C	DECONTAMINATION UNIT
	HEPA-FILTERED NEGATIVE AIR UNIT

ALTERNATE WORK PRACTICE PLAN FOR TUNNELS

WHEELER MIDDLE SCHOOL
298 NORWICH-WESTERLY ROAD
NORTH STONINGTON, CONNECTICUT

DATE: 06/14/2017
PROJECT NO.: 17-013.13T2
DRAWN BY: BB
REVIEWED BY: JT

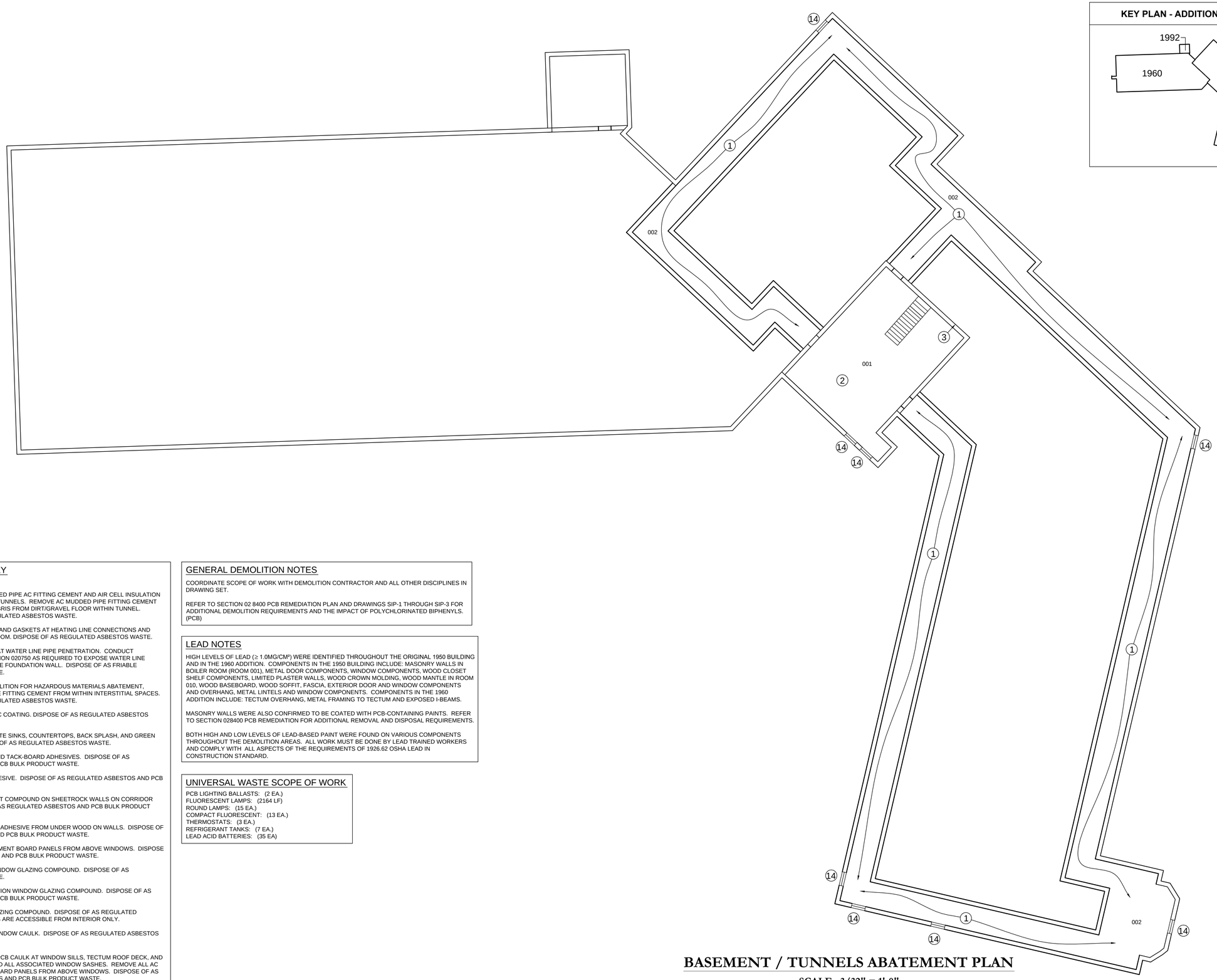
EAGLE Environmental, Inc.
8 SOUTH MAIN STREET, SUITE 3
TERRYVILLE, CONNECTICUT 06786
860-589-8257

SHEET NO.
AWP-1
SHEET: 1 OF 1

\\Eaglesvr\public\2017 Files\2017 AutoCAD\NORTH STONINGTON, TOWN OF\HIGH-MIDDLE SCHOOL, GYMATORIUM\MIDDLE SCHOOL\AWP\CAD\298 N. WESTERLY RD.-WHEELER MIDDLE SCHOOL.dwg

ATTACHMENT 2

HM-1 THROUGH HM-3



KEY PLAN - ADDITIONS BY YEAR

ASBESTOS ABATEMENT KEY

AC= ASBESTOS CONTAINING

1. REMOVE ALL RESIDUAL MUDDED PIPE AC FITTING CEMENT AND AIR CELL INSULATION FROM ALL PIPES WITHIN THE TUNNELS. REMOVE AC MUDDED PIPE FITTING CEMENT AND AIRCELL INSULATION DEBRIS FROM DIRT/GRAVEL FLOOR WITHIN TUNNEL. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
2. REMOVE ALL VALVE PACKING AND GASKETS AT HEATING LINE CONNECTIONS AND VALVES FROM THE BOILER ROOM. DISPOSE OF AS REGULATED ASBESTOS WASTE.
3. REMOVE ALL GREY PACKING AT WATER LINE PIPE PENETRATION. CONDUCT SELECTIVE DEMOLITION SECTION 020750 AS REQUIRED TO EXPOSE WATER LINE INSULATION WITHIN CONCRETE FOUNDATION WALL. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
4. FOLLOWING SELECTIVE DEMOLITION FOR HAZARDOUS MATERIALS ABATEMENT, REMOVE ALL AC MUDDED PIPE FITTING CEMENT FROM WITHIN INTERSTITIAL SPACES. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
5. REMOVE ENTIRE SINK WITH AC COATING. DISPOSE OF AS REGULATED ASBESTOS WASTE.
6. REMOVE ALL BLACK COMPOSITE SINKS, COUNTERTOPS, BACK SPLASH, AND GREEN ADHESIVE TO SINK. DISPOSE OF AS REGULATED ASBESTOS WASTE.
7. REMOVE ALL CHALKBOARD AND TACK-BOARD ADHESIVES. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
8. REMOVE ALL AC MIRROR ADHESIVE. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
9. REMOVE ALL AC YELLOW JOINT COMPOUND ON SHEETROCK WALLS ON CORRIDOR SIDE OF ROOM. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
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15. REMOVE ALL EXTERIOR AC WINDOW CAULK. DISPOSE OF AS REGULATED ASBESTOS WASTE.

REMOVE ALL AC AND PCB CAULK AT WINDOW SILLS, TECTUM ROOF DECK, AND SIDE OF WINDOWS AND ALL ASSOCIATED WINDOW SASHES. REMOVE ALL AC EXTERIOR CEMENT BOARD PANELS FROM ABOVE WINDOWS. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.

REMOVE ALL AC TAR AND RESIDUAL GRAY CAULK AT CAFETERIA ROOF WALL. DISPOSE OF REGULATED ASBESTOS WASTE.

GENERAL DEMOLITION NOTES

COORDINATE SCOPE OF WORK WITH DEMOLITION CONTRACTOR AND ALL OTHER DISCIPLINES IN DRAWING SET.

REFER TO SECTION 02 8400 PCB REMEDIATION PLAN AND DRAWINGS SIP-1 THROUGH SIP-3 FOR ADDITIONAL DEMOLITION REQUIREMENTS AND THE IMPACT OF POLYCHLORINATED BIPHENYLS. (PCB)

LEAD NOTES

HIGH LEVELS OF LEAD (≥ 1.0MG/CM²) WERE IDENTIFIED THROUGHOUT THE ORIGINAL 1950 BUILDING AND IN THE 1960 ADDITION. COMPONENTS IN THE 1950 BUILDING INCLUDE: MASONRY WALLS IN BOILER ROOM (ROOM 001), METAL DOOR COMPONENTS, WINDOW COMPONENTS, WOOD CLOSET SHELF COMPONENTS, LIMITED PLASTER WALLS, WOOD CROWN MOLDING, WOOD MANTLE IN ROOM 010, WOOD BASEBOARD, WOOD SOFFIT, FASCIA, EXTERIOR DOOR AND WINDOW COMPONENTS AND OVERHANG, METAL LINTELS AND WINDOW COMPONENTS. COMPONENTS IN THE 1960 ADDITION INCLUDE: TECTUM OVERHANG, METAL FRAMING TO TECTUM AND EXPOSED I-BEAMS.

MASONRY WALLS WERE ALSO CONFIRMED TO BE COATED WITH PCB-CONTAINING PAINTS. REFER TO SECTION 028400 PCB REMEDIATION FOR ADDITIONAL REMOVAL AND DISPOSAL REQUIREMENTS.

BOTH HIGH AND LOW LEVELS OF LEAD-BASED PAINT WERE FOUND ON VARIOUS COMPONENTS THROUGHOUT THE DEMOLITION AREAS. ALL WORK MUST BE DONE BY LEAD TRAINED WORKERS AND COMPLY WITH ALL ASPECTS OF THE REQUIREMENTS OF 1926.62 OSHA LEAD IN CONSTRUCTION STANDARD.

UNIVERSAL WASTE SCOPE OF WORK

PCB LIGHTING BALLASTS: (2 EA.)
FLUORESCENT LAMPS: (2164 LF)
ROUND LAMPS: (15 EA.)
COMPACT FLUORESCENT: (13 EA.)
THERMOSTATS: (3 EA.)
REFRIGERANT TANKS: (7 EA.)
LEAD ACID BATTERIES: (35 EA)

BASEMENT / TUNNELS ABATEMENT PLAN

SCALE: 3/32" = 1'-0"

QUISENBERRY ARCARI
ARCHITECTS, LLC
www.qa-architects.com
T (860) 677-4594
F (860) 677-8534
318 Main Street
Farmington, CT 06032

EAGLE Environmental, Inc.
8 SOUTH MAIN STREET, SUITE 3
TERRYVILLE, CONNECTICUT 06786
860-589-8257

NOT FOR CONSTRUCTION
ISSUED FOR REVIEW ONLY

ADDITIONS AND RENOVATIONS TO:
Wheeler Middle & High School
298 Norwich-Westerly Rd.
North Stonington, CT

Sheet Description:
HAZARDOUS BUILDING MATERIALS ABATEMENT PLAN

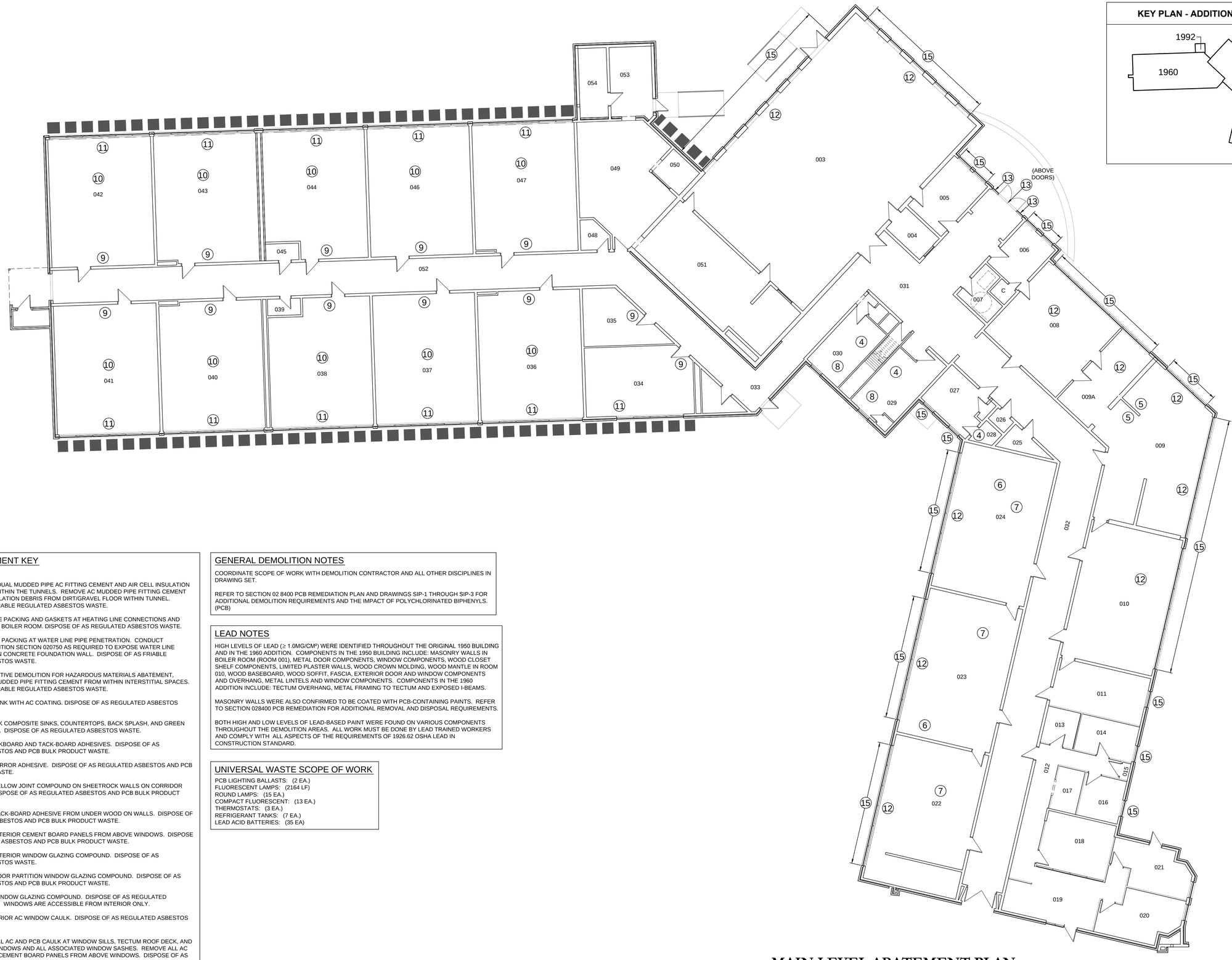
State Project #:
102-0024 EA/RR

Issue Dates:
THIRD PARTY REVIEW
JUNE 16, 2017

Revisions:

Project #:
QA: 1650
EE: 17-017-13T2

Sheet #:
HM-1



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GENERAL DEMOLITION NOTES

COORDINATE SCOPE OF WORK WITH DEMOLITION CONTRACTOR AND ALL OTHER DISCIPLINES IN DRAWING SET.

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UNIVERSAL WASTE SCOPE OF WORK

PCB LIGHTING BALLASTS: (2 EA.)
FLUORESCENT LAMPS: (2164 LF)
ROUND LAMPS: (15 EA.)
COMPACT FLUORESCENT: (13 EA.)
THERMOSTATS: (3 EA.)
REFRIGERANT TANKS: (7 EA.)
LEAD ACID BATTERIES: (35 EA)

MAIN LEVEL ABATEMENT PLAN

SCALE: 3/32" = 1'-0"

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ADDITIONS AND RENOVATIONS TO:
Wheeler Middle & High School
298 Norwich-Westerly Rd.
North Stonington, CT

Sheet Description:
HAZARDOUS BUILDING MATERIALS ABATEMENT PLAN

State Project #:
102-0024 EA/RR

Issue Dates:
THIRD PARTY REVIEW
JUNE 16, 2017

Revisions:

Project #:
QA: 1650
EE: 17-017-13T2

Sheet #:
HM-2

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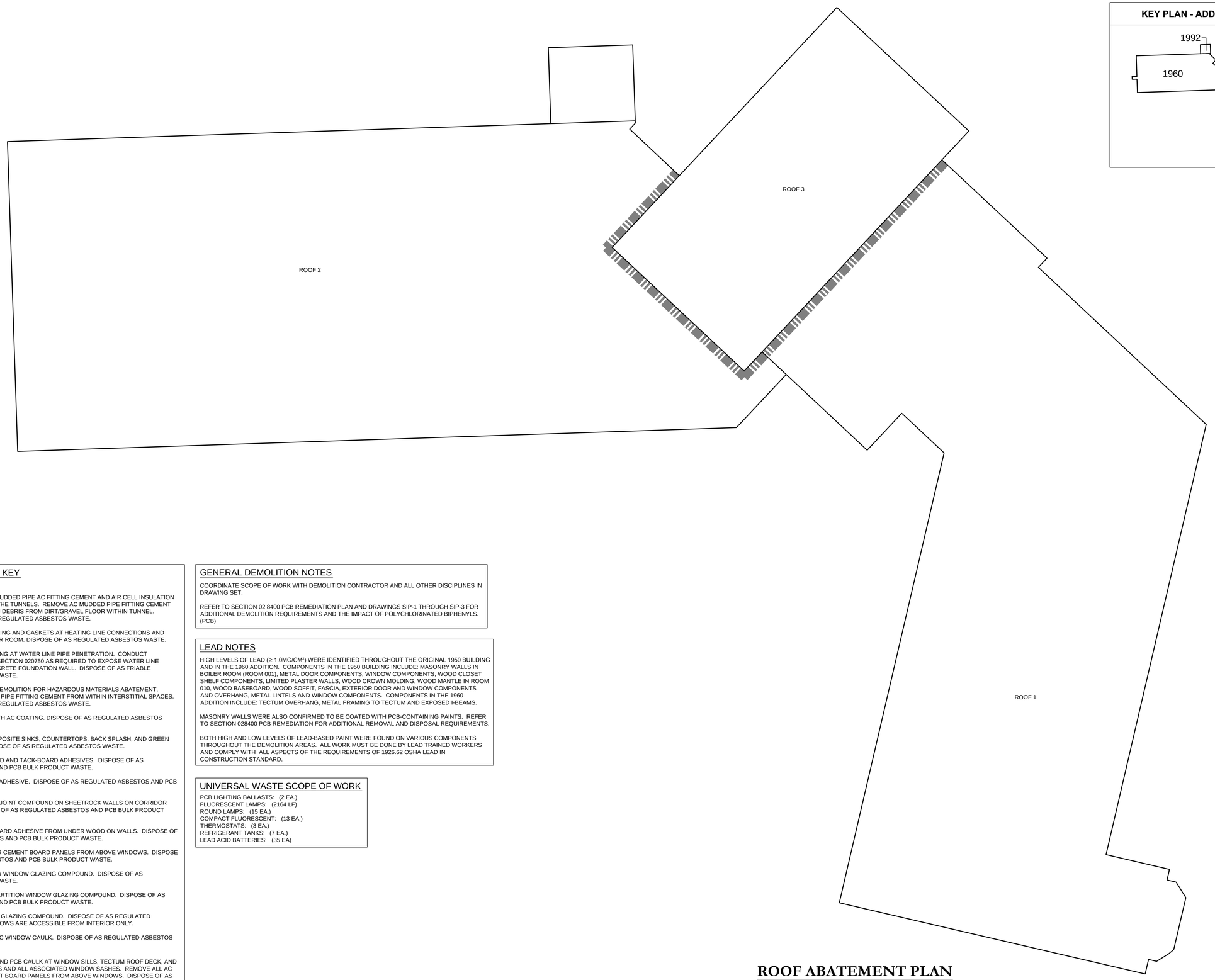

KEY PLAN - ADDITIONS BY YEAR

ASBESTOS ABATEMENT KEY

AC= ASBESTOS CONTAINING

1. REMOVE ALL RESIDUAL MUDDED PIPE AC FITTING CEMENT AND AIR CELL INSULATION FROM ALL PIPES WITHIN THE TUNNELS. REMOVE AC MUDDED PIPE FITTING CEMENT AND AIRCELL INSULATION DEBRIS FROM DIRT/GRAVEL FLOOR WITHIN TUNNEL. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
2. REMOVE ALL VALVE PACKING AND GASKETS AT HEATING LINE CONNECTIONS AND VALVES FROM THE BOILER ROOM. DISPOSE OF AS REGULATED ASBESTOS WASTE.
3. REMOVE ALL GREY PACKING AT WATER LINE PIPE PENETRATION. CONDUCT SELECTIVE DEMOLITION SECTION 020750 AS REQUIRED TO EXPOSE WATER LINE INSULATION WITHIN CONCRETE FOUNDATION WALL. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
4. FOLLOWING SELECTIVE DEMOLITION FOR HAZARDOUS MATERIALS ABATEMENT, REMOVE ALL AC MUDDED PIPE FITTING CEMENT FROM WITHIN INTERSTITIAL SPACES. DISPOSE OF AS FRIABLE REGULATED ASBESTOS WASTE.
5. REMOVE ENTIRE SINK WITH AC COATING. DISPOSE OF AS REGULATED ASBESTOS WASTE.
6. REMOVE ALL BLACK COMPOSITE SINKS, COUNTERTOPS, BACK SPLASH, AND GREEN ADHESIVE TO SINK. DISPOSE OF AS REGULATED ASBESTOS WASTE.
7. REMOVE ALL CHALKBOARD AND TACK-BOARD ADHESIVES. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
8. REMOVE ALL AC MIRROR ADHESIVE. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
9. REMOVE ALL AC YELLOW JOINT COMPOUND ON SHEETROCK WALLS ON CORRIDOR SIDE OF ROOM. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
10. REMOVE ALL AC TACK-BOARD ADHESIVE FROM UNDER WOOD ON WALLS. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
11. REMOVE ALL AC INTERIOR CEMENT BOARD PANELS FROM ABOVE WINDOWS. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
12. REMOVE ALL AC INTERIOR WINDOW GLAZING COMPOUND. DISPOSE OF AS REGULATED ASBESTOS WASTE.
13. REMOVE ALL AC DOOR PARTITION WINDOW GLAZING COMPOUND. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.
14. REMOVE ALL AC WINDOW GLAZING COMPOUND. DISPOSE OF AS REGULATED ASBESTOS WASTE. WINDOWS ARE ACCESSIBLE FROM INTERIOR ONLY.
15. REMOVE ALL EXTERIOR AC WINDOW CAULK. DISPOSE OF AS REGULATED ASBESTOS WASTE.

REMOVE ALL AC AND PCB CAULK AT WINDOW SILLS, TECTUM ROOF DECK, AND SIDE OF WINDOWS AND ALL ASSOCIATED WINDOW SASHES. REMOVE ALL AC EXTERIOR CEMENT BOARD PANELS FROM ABOVE WINDOWS. DISPOSE OF AS REGULATED ASBESTOS AND PCB BULK PRODUCT WASTE.

REMOVE ALL AC TAR AND RESIDUAL GRAY CAULK AT CAFETERIA ROOF WALL. DISPOSE OF REGULATED ASBESTOS WASTE.

GENERAL DEMOLITION NOTES

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ROOF ABATEMENT PLAN

SCALE: 3/32" = 1'-0"

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ATTACHMENT 3

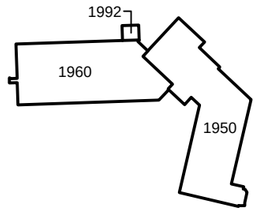
SIP–1 THROUGH SIP-6

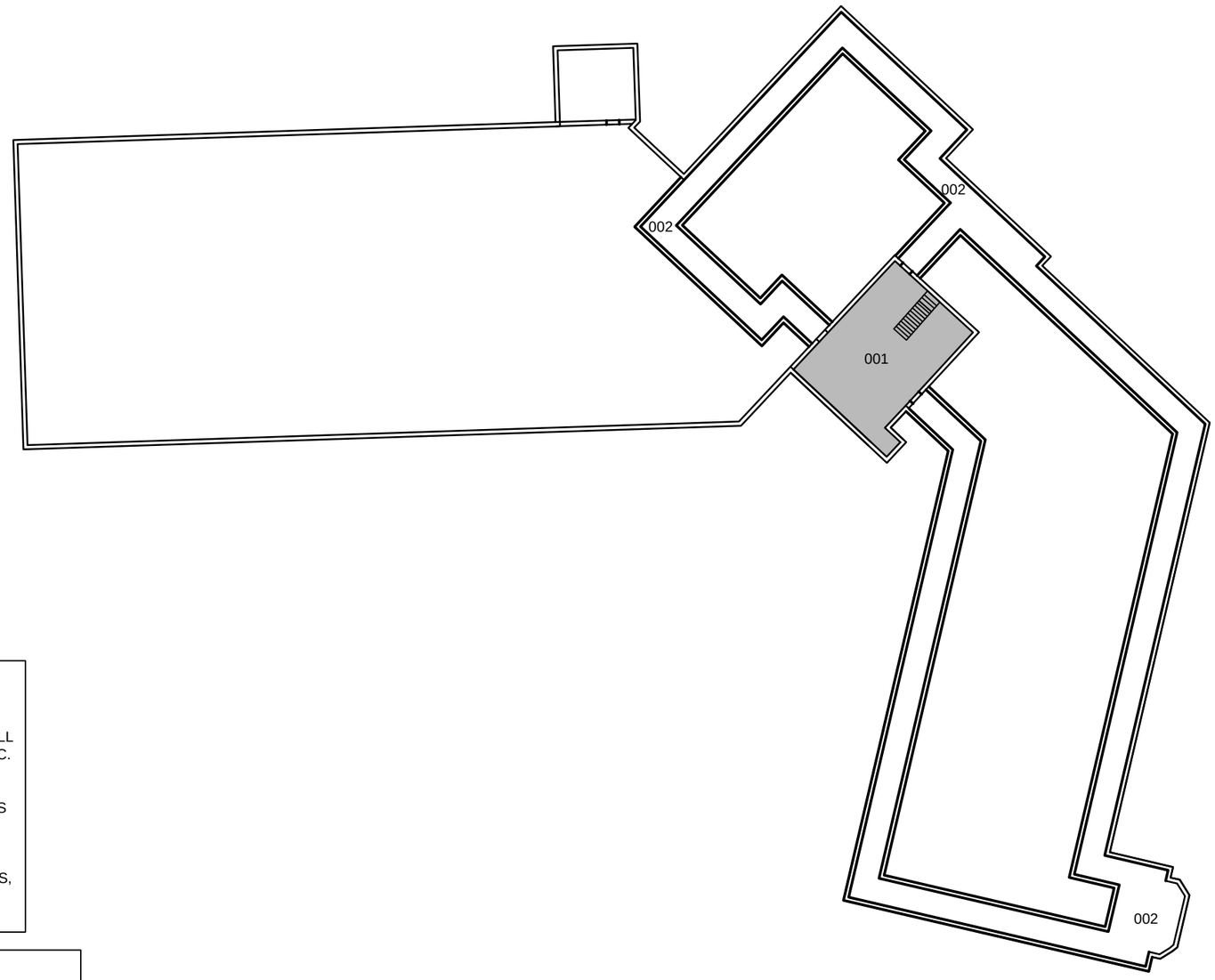
SIDE-C

SIDE-B

SIDE-D

KEY PLAN - ADDITIONS BY YEAR





PCB REMEDIATION NOTES:

THROUGHOUT 1950 BUILDING AND 1960 ADDITION:

1. REMOVE ALL PAINTED WALLS AND PARTITIONS. REMOVE ALL ASSOCIATED ADHESIVES, CAULKS, GLAZING COMPOUNDS, ETC. DISPOSE OF AS PCB BULK PRODUCT WASTE.

2. REMOVE ALL PAINTED STRUCTURAL STEEL. DISPOSE OF AS CONNECTICUT REGULATED WASTE (CR01) AND RCRA LEAD WASTE.

3. REMOVE ALL DOORS, DOORFRAMES, LOUVERS AND LINTELS, AND ALL ASSOCIATED CAULKS. DISPOSE OF AS PCB BULK PRODUCT WASTE.

PCB REMEDIATION KEY:

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- REMOVE VINYL FLOOR TILE AND MASTIC. DISPOSE OF AS CONNECTICUT REGULATED WASTE (CR01).
- REMOVE FIBER BOARD ROOF DECK. DISPOSE OF AS PCB REMEDIATION WASTE >50 PPM.
- REMOVE PAINT FROM INTERIOR CONCRETE WALLS, FLOORS, AND CEILINGS. DISPOSE OF AS CONNECTICUT REGULATED WASTE (CR01).

BASEMENT AND TUNNELS

NOT TO SCALE

DATE: 6/16/2017
PROJECT NO.: 17-013.13T2
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DRAWN BY: BB
REVIEWED BY: JT

ON-SITE PCB CLEANUP AND DISPOSAL PLAN

WHEELER ELEMENTARY SCHOOL
298 NORWICH-WESTERLY ROAD
NORTH STONINGTON, CONNECTICUT

EAGLE ENVIRONMENTAL, Inc.
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SHEET NO.

SIP-1

SHEET: 1OF 3

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SIDE-A (STREET SIDE)

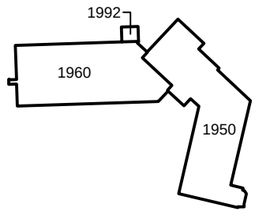
SIDE-C

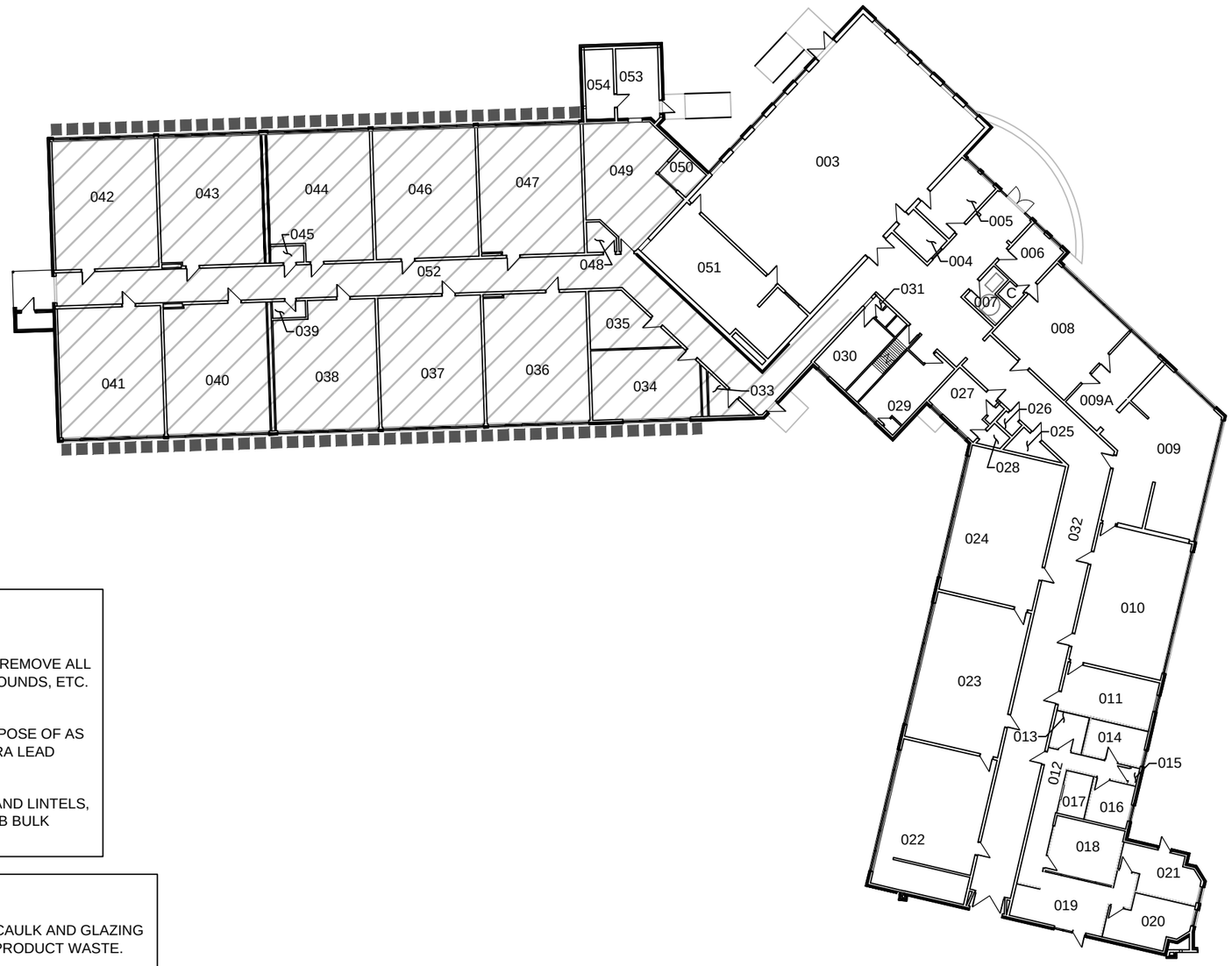
SIDE-B

SIDE-D

SIDE-A (STREET SIDE)

KEY PLAN - ADDITIONS BY YEAR





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MAIN LEVEL

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SHEET NO.

SIP-2

SHEET: 2 OF 3

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SIDE-C

SIDE-B

SIDE-D

SIDE-A (STREET SIDE)

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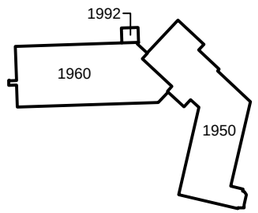

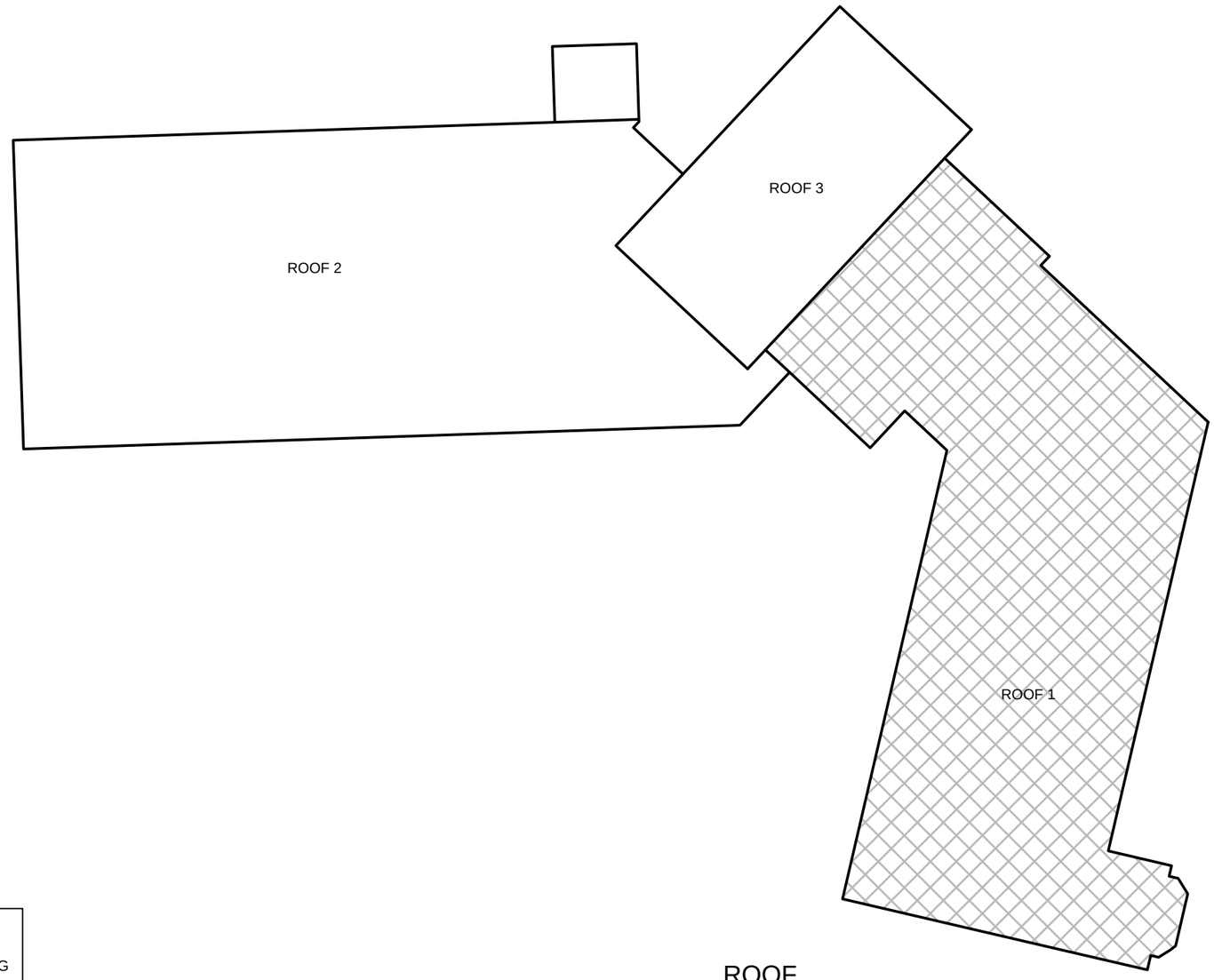

ROOF
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SHEET NO.
SIP-3
SHEET: 3 OF 3