CITY OF DERBY, CT

DEMOLITION OF TWO BUILDINGS

43 ANSON STREET

&

187-189 DERBY AVENUE

BID DOCUMENTS

February 1, 2022

BID DOCUMENTS

FOR

DEMOLITION OF TWO BUILDINGS

43 ANSON STREET
&
187-189 DERBY AVENUE

DERBY, CONNECTICUT

SLR Project #11560.00096.0010

FEBRUARY 1, 2022

PREPARED BY:

SLR INTERNATIONAL CORPORATION

99 REALTY DRIVE

CHESHIRE, CT 06410

CITY OF DERBY

DEMOLITION OF TWO BUILDINGS

43 ANSON STREET

&

187-189 DERBY AVENUE

BID DOCUMENTS

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CITY OF DERBY

DEMOLITION OF TWO BUILDINGS

43 ANSON STREET

&

187-189 DERBY AVENUE

FEBRUARY 1, 2022

INVITATION TO BID

Sealed bids submitted on the form furnished in the Contract Documents will be received until 11:00 a.m. on Friday, February 25, 2022, via the City of Derby's secure portal at https://www.derbyct.gov/bids. They will then be publicly opened and read aloud.

A **MANDATORY** pre-bid meeting is scheduled for 1:00 p.m. Friday, February 4, 2022.

Project Description:

The base Scope of this project includes the demolition of two buildings located at 43 Anson Street & 187-189 Derby Avenue, Derby CT and more specifically includes:

- Mobilization
- Site preparation
- Maintenance and protection of traffic & coordination with City Police
- Removal and off-site management of all regulated building materials
- Demolition, segregation, and off-site management of all recyclable materials, C&D debris, and other solid wastes
- Site restoration

Specifications and proposal documents may be obtained from the Town/City Clerk, Marc J. Garofalo, MPA, CCT, City of Derby, City Hall, 1 Elizabeth Street, Derby, CT 06418 via the web portal at https://www.derbyct.gov/bids.

The City of Derby reserves the right to accept or reject any, all, or any part of proposals, to waive formalities or informalities, and to make an award that is deemed to be in the best interests of the City.

EOE/AA

CITY OF DERBY

STANDARD INSTRUCTIONS

Demolition of

43 Anson Street

and

187-189 Derby Avenue

February 1, 2022

1. INTRODUCTION

The City of Derby is soliciting proposals for the above-named project.

2. KEY EVENT DATES

Advertisement of Request for Proposals	February 1, 2022
Mandatory Pre-Bid Meeting Derby City Hall, Joan Williamson Aldermanic Chambers 1 Elizabeth Street, Derby, CT 06418	1:00 PM February 4, 2022
Public Proposal Opening Derby City Hall, Finance Office, 1 Elizabeth Street, Derby, CT 06418	11:00 AM February 25, 2022
Proposal Awarded (Not Definite)	March 3, 2022
Notice to Proceed	March 10, 2022
Commencement of Work	Within ten (10) calendar days of Notice to Proceed
Completion Date	Within 90 days of Notice to Proceed

3. OBTAINING PROPOSAL DOCUMENTS

Specifications and proposal documents may be obtained from the City of Derby City Hall, Finance Office located at 1 Elizabeth Street, Derby, CT 06418 via the web portal at https://www.derbyct.gov/bids,

4. PROPOSAL SUBMISSION INSTRUCTIONS

A. One (1) original of all proposals must be submitted via the web portal at https://www.derbyct.gov/bids and clearly marked "Demolition of 2 Buildings, 43 Anson Street & 187-189 Derby Avenue.". Corrections and/or modifications received after the first proposal is publicly opened will NOT be accepted.

B. Ditto marks or words such as "SAME" on the Proposal Form are NOT considered writing and must not be used.

C. All information must be submitted in ink or typewritten. Mistakes may be crossed out and corrections inserted. Corrections must be initialed by the person signing the proposal.

D. Proposals are considered valid for ninety (90) days after proposal(s) are opened. Proposers may not withdraw, cancel or modify their proposal for a period of ninety (90) days after proposal(s) are opened.

E. Proposals must be signed by an authorized person representing the legal entity of the firm submitting the proposal.

F. The inability to meet any specified requirements(s) must be stated in writing and attached to the proposal form, or written on the proposal form.

5. COST OF PROPOSAL DOCUMENTS

If any part of the proposal documents, including the specifications and plans, are provided on paper 18" X 24" or larger, there is a one hundred ($100) dollar conditional refundable deposit required for each set of documents. Each proposer may obtain no more than two (2) sets of documents. Upon returning the documents in good condition prior to ten (10) calendar days after the proposal is awarded, the deposit will be fully refunded. There will be no refund for documents returned subsequent to ten (10) calendar days after the proposal is awarded.

6. PRESUMPTION OF PROPOSER BEING FULLY INFORMED

At the time the first proposal is opened, each proposer is presumed to have read and be thoroughly familiar with all proposal and contract documents for this project, and has performed an on-site inspection of the work location. Failure or omission of the proposer to receive or examine any information shall in no way relieve any proposer from obligations with respect to their proposal.

7. PRE-PROPOSAL CONFERENCE

Attendance is NOT mandatory at the pre-proposal conference, if any is indicated in section 2 titled Key Event Dates. Failure to attend the conference does not relieve proposers of obligations under this proposal.

8. INTERPRETATION OF ACCEPTABLE WORK

The specifications, proposal and contract documents are to be interpreted as meaning those acceptable to the City of Derby. Any substantive changes or interpretations will be issued by the owner in writing as an addendum.

9. TAX EXEMPTIONS

The City of Derby is exempt from Federal Excise taxes and Connecticut Sales and Use taxes. Firms shall avail themselves of these exemptions.

10. INSURANCE

The firm awarded this proposal must provide a current Certificate of Insurance to the Director of Finance PRIOR to commencement of work, with the following requirements:

A. General liability coverage limits for bodily injury, property damage, and personal injury, $1,000,000 per occurrence/$2,000,000 general aggregate
B. Auto liability limits for property damage and bodily injury caused by the operation of motor vehicles, $1,000,000 per occurrence
Contractual liability, $1,000,000 per occurrence
C. Professional liability Insurance, $1,000,000 per claim/$1,000,000 annual aggregate, when professional services are being provided
D. Owner's, Contractors Protective Liability (OCP) $1,000,000 per occurrence, when required by the City of Derby
E. Worker's Compensation, as required by Connecticut State statute
F. "City of Derby" is to appear as an additional insured on all Certificates of Insurance for general liability and auto liability coverage.
G. All insurance is to be provided by carriers authorized to issue such insurance in the State of Connecticut and rated at least A-/VIII by A.M. Best. Exceptions are subject to the sole discretion of the City of Derby.
H. All insurance may not be canceled or modified without thirty (30) days written notice by registered U.S. Mail to " Director of Finance, City of Derby, 1 Elizabeth Street, Derby, Connecticut 06032.

11. PROPOSAL BOND

Firms submitting proposals are required to furnish a proposal surety at the time the first proposal is opened in the amount of ten (10) percent of the total amount of their proposal. The proposal surety should be in one of the following three (3) forms: (a) a bank certified check, (b) a bank check, or (c) a surety company bond. The surety company must be authorized to write such surety bonds in the State of Connecticut. Checks or bonds must be drawn to the order of "City of Derby, CT, 1 Elizabeth Street, Derby, Connecticut 06032."

12. PERFORMANCE BOND AND PAYMENT BOND

To ensure the faithful execution of this proposal according to its provisions, the firm awarded this proposal must provide to the City of Derby, at the firm's expense, a performance and payment bond in the amount of one hundred (100) percent of the proposal. The bonds must be issued by a company authorized to write such surety bonds in the State of Connecticut. The bonds shall be drawn to the order of the "City of Derby, CT, 1 Elizabeth Street, Derby, Connecticut 06032."and delivered prior to commencement of work. On projects less than fifty thousand ($50,000) dollars, the firm may substitute the performance bond (but not the payment bond), for a bank certified check or a bank cashier's check in the amount of ten (10) percent of the proposal.

13. GUARANTEE

The firm awarded work under this Request for Proposals shall guarantee all labor, material and workmanship for a period of one (1) year from the date of substantial completion as determined by the Town, as a condition of the performance bond. Five (5) percent of the total contract amount may be retained by the City of Derby for the duration of the guarantee period, or until the work is fully accepted by the City, whichever is later.

In addition, any product warranty offered by the manufacturer or distributor in excess of one (1) year shall be given to the City by the firm at the time of substantial completion.

14. PERMITS

The Proposer is solely responsible for obtaining all required permits, obtaining all necessary inspections and approvals, and satisfying any and all fees.

15. FAIR EMPLOYMENT PRACTICES

The Proposer agrees not to discriminate against any employee or applicant for employment in the performance of this proposal's work with respect to hire, tenure, terms, conditions, or privileges of employment due to race, sex, age, religion, national origin, or other condition proscribed by State or Federal law.

16. STANDARD FORM OF CONTRACTUAL AGREEMENT

City of Derby intends to execute the proposal with the American Institute of Architects (AIA) document A101 titled, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum, 1987 edition.

17. AWARDING THE PROPOSAL

City of Derby reserves the right to accept or reject, any, all, or any part of proposals, to waive formalities or informalities, and to make an award that is deemed to be in the best interests of the City.

The "Proposal Awarded" date in section 2. titled Key Event Dates is the date the proposal is anticipated to be awarded. It is not a date certain.

The lowest priced proposal is NOT the sole determining factor when awarding this proposal.

END OF STANDARD INSTRUCTIONS

BID PROPOSAL

TO: City of Derby, CT
1 Elizabeth Street
Derby, Connecticut 06418
Attention Director of Finance

PROPOSAL OF: NAME: _____

STREET: _____

CITY: _____

FOR: **Demolition of 43 Anson Street & 187-189 Derby Avenue**

The undersigned Bidder, in compliance with the Notice to Bidders and Invitation to Bid for the " **Demolition of 43 Anson Street & 187-189 Derby Avenue** " in Derby, Connecticut, having examined the Contract Plans dated **January 26, 2022,** and Contract Specifications dated **January 26, 2022,** with related documents, and the site of the proposed work, and being familiar with the conditions surrounding the construction related to the project, hereby proposes to furnish all labor, materials and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein. He will contract with the City to perform all the work required by the Bidding Documents after notification of award of the contract and he will take in full payment, therefore, the unit price or lump sum price applicable to each item of the work as stated in the following schedule.

The respondent hereby acknowledges receipt of the Addenda listed below and further acknowledges that the provisions of each Addendum have been included in the preparation of this Bid:

Addendum No.	**Dated**	**Addendum No.**	**Dated**
_____		_____	
_____		_____	
_____		_____	
_____		_____	
_____		_____	

BID SCHEDULE:

BIDDER'S NAME:

_____

ITEM NO.	ITEM/ DESCRIPTION	UNIT	QTY	UNIT PRICES BID		AMOUNT IN FIGURES
				IN FIGURES	IN WRITING	
1	Demolition of 43 Anson Street	LS	1			
2	Demolition of 187-189 Derby Avenue	LS	1			

Cost of any required containment is included in the cost of individual items.

Base Bid Total (in words)

$_____

_____

(in Dollars)

_____

By Submission of this Bid, each bidder certifies that his Bid has been arrived at independently, without consultation, communication, or agreement as to any matter related to this Bid with any other Bidder or with any competitor.

The Bidder, by submittal of this Bid, agrees with the Owner that the amount of the bid security deposited with this Bid fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the Bidder to fulfill his agreements as above provided.

By: _____

(Signature and Title of Authorized Representative)

_____

Business Name

_____

Street

_____

City, State, and Zip Code

Date: _____

City of Derby

PROPOSAL FORM

Demolition of 43 Anson Street & 187-189 Derby Avenue

Under penalty of perjury and other remedies available to City of Derby, the undersigned certifies this proposal is submitted without collusion and all responses are true and accurate. If awarded this proposal it is agreed this forms a contractual obligation to provide services at fees specified in this Proposal Form, subject to and in accordance with all instructions, proposal, and contract documents, including any addenda, which are all made part of this proposal.

_____ _____

Signature of Authorized Person Date

_____

Printed Name of Authorized Person

_____

Company Title of Authorized Person

_____

Name of Company

_____

Address of Company

_____

Address of Company

_____

City, State, and Zip Code

_____ _____

Telephone Number Facsimile Number

END OF PROPOSAL FORM

GENERAL CONDITIONS

SECTION 01 10 00 - SUMMARY OF THE WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The title and location of the Work is printed on the cover of this Project Manual.

B. Type of Contract: Lump Sum per site

1. Demolition and removal of the following:

   a. Three Story wood Framed Building at 43 Anson Street.

   b. Asbestos Abatement

   c. Protection of adjacent properties.

   d. All temporary traffic controls and pedestrian safety controls including City Police if required.

   e. Removing all below-grade construction, driveways, and stairs.

   f. Filling & grading site to match surrounding area

   g. Salvaging items for reuse by Owner.

2. Demolition and removal of the following

   a. Three Story wood Framed Building at 187-189 Derby Avenue

   b. Asbestos Abatement

   c. Protection of adjacent properties

   d. All temporary traffic controls and pedestrian safety controls including City Police if required.

   e. Basement and below grade foundation to remain.

   f. Cover existing doorway and window openings in foundation wall adjacent to road with steel plates bolted to concrete foundation.

   g. Create 10 drainage holes (4” minimum diameter) through basement slab, place compacted granular fill & grading to match surrounding area per plans.

h. Salvaging items for reuse by Owner.

1.02 PHYSICAL COMPLETION DATE

A. Physically complete the Work within 60 days after Notice to Proceed.

1.03 ITEMS NOT INCLUDED

A. The following items shown on the drawings are not included in this Contract:

1. Items indicated “NIC” (Not in Contract).

1.04 CONFINED SPACE

A. Comply with confined space and permit-required confined space as defined in Title 29, Part 1910, Section 146 of the Code of Federal Regulations (29CFR 1910.146).

B. Indicated confined spaces are not intended to limit or define Contractor or subcontractors’ regulatory compliance requirements. Confined spaces are not indicated on the drawings, but may be present or created by the work of this contract. Notify the Project Representative, in writing, of confined spaces created or eliminated during execution of the Work.

1.05 CONNECTION TO ELECTRICAL EQUIPMENT OR SYSTEMS

A. Contractor will not be allowed to tie into electrical equipment or systems on site.

1.06 CONTRACTOR USE OF PREMISES

A. Work hours shall be from 7:30 am to 3:30 pm Monday through Friday. Work outside these hours will not be allowed without written approval of the City.

B. Comply with applicable federal and State of Connecticut Right-to-Know Law provisions and supply copies of the appropriate Material Safety Data Sheets (MSDS) to the City’s Representative.

C. Do not diminish the level of life safety during performance of the Work.

1.07 REFERENCE SPECIFICATIONS AND STANDARDS

A. Comply with the requirements of the various specifications and standards referred to in these specifications, except where they conflict with the requirements of these

specifications. Such reference specifications and standards shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.

B. DOT Specifications: If the abbreviation DOT appears in these Specifications, it shall mean the most current edition of the State of Connecticut Department of Transportation, "Standard Specifications for Roads, Bridge and Incidental Construction, Form 818", including all applicable Addenda in effect at the time of receipt of bids.

1.08 COMPLIANCE

A. Comply with applicable regulatory requirements. If there are conflicts between local, State, and/or Federal regulatory requirements seek a consultation with the State of Connecticut Department of Labor. Resolve conflicts to the satisfaction of the State of Connecticut Department of Labor prior to commencing the Work.

1.09 LAYING OUT

A. Examine the Contract Documents thoroughly and promptly report any errors or discrepancies to the City's Representative before commencing the Work.

B. Lay out the Work in accordance with the Contract Documents.

1.10 CLEANING UP

A. Clean up and containerize the rubbish (refuse, debris, waste materials, and removed materials and equipment) resulting from the Work at the end of each workday and leave work areas broom clean. Locate containerized rubbish where directed.

B. Remove piled rubbish from property at least once a week or more often if the rubbish presents a hazard. Properly dispose of rubbish. Burning of rubbish will not be permitted.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 31 13 - PROJECT SCHEDULE

PART 1 GENERAL

1.01 RELATED REQUIREMENTS AND INFORMATION SPECIFIED ELSEWHERE

A. Project Meetings: Section 013119.

B. Submittals: Section 013300.

1.02 DEVELOPMENT OF THE PROJECT SCHEDULE

A. The Owner's Representative will schedule the Project Schedule Definition Meeting as outlined in Section 013119. The meeting will include presentation of the detailed Preliminary Project Schedule provided by the Contractor. The discussions and mutual agreements reached at this meeting will form the basis for developing the CPM baseline Project Schedule and will be used for coordinating, scheduling, and monitoring the Work of all related contracts.

B. The Owner's Representative will approve the Project Schedule.

1.03 UPDATING THE PROJECT SCHEDULE

A. The project meetings will be used for presenting the updated Project Schedule and determining the status of construction activities. At each meeting, the Contractor will furnish to the Owner's Representative schedule status reports to be used for indicating the anticipated completion date of current activities, analyzing the progress of construction, and identifying items behind schedule.

B. Furnish all schedule information requested by the Owner's Representative.

1.04 MAINTAINING SCHEDULE

A. Perform the Work in accordance with the Project Schedule and provide resources necessary to maintain the progress of activities as scheduled.

1.05 SCHEDULE RELATED REPORTING

A. Detailed Estimate: Refer to Section 013300.

B. Application For Payment: Prepare forms and support documentation in a manner compatible with the Detailed Estimate. Show costs in support of activities progressed in the Project Schedule status updates. Percentage completion amounts must reflect accepted work in place as agreed upon by Owner's Representative and documented in project meeting schedule status reports.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 31 13

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 GENERAL

1.01 INITIAL JOB MEETING

A. The Owner's Representative will notify all parties concerned of the time and place of the initial job meeting. The meeting will be conducted by the Owner's Representative.

1.02 PROJECT SCHEDULE DEFINITION MEETING

A. The Owner's Representative will notify all parties concerned of the time and place of the meeting (normally within 10 days after award of Contract). The meeting will be conducted by the Owner's Representative for the purpose of discussing all information required for the Contractor to develop the project schedule.

B. The Owner's Representative will approve the project schedule based on the discussions and mutual agreements reached at the meeting.

1.03 WEEKLY JOB MEETINGS

A. Unless otherwise directed, job meetings will be held every week at a time and place agreed upon by the Owner's Representative, the Contractor, and the City of Derby Building Inspector. Other interested parties may attend when needed, e.g., subcontractors and representatives from suppliers, public utilities, and local government. The meetings will be conducted by the Owner's Representative for the following purposes:

1. Review job progress, quality of Work, and approval and delivery of materials.
2. Identify and resolve problems which impede planned progress.
3. Coordinate the efforts of all concerned so that the project progresses on schedule to on time completion.
4. Maintain sound working relationships between the Contractors and the Owner's Representative, and a mutual understanding of the project requirements.
5. Maintain sound working procedures.

1.04 ATTENDANCE

A. A Contractor's Representative shall be required to attend all meetings scheduled by the Owner's Representative.

B. The Contractor's Representative shall be a competent supervisor familiar with the work and have authority to act for the Contractor.

C. If the Contractor's Representative fails to attend two scheduled meetings without prior approval, the contractor will be directed to replace the current Contractor Representative. Further incidents of non-attendance by the Contractor's Representative, will form the basis for review of the Contractor's responsible bidder status.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 31 19

SECTION 01 33 00 - SUBMITTALS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Other requirements pertaining to submittals are included in the General Conditions and in various sections of the Specifications.

1.02 DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS

A. Deviations from the requirements of the Contract Documents will not be allowed unless a request for deviation is made in writing at the time of submission and the specific deviation is approved by the Owner's Representative. The request for deviation shall include the reason for the requested deviation.

1.03 SUBSTITUTIONS FOR BRAND NAMED PRODUCTS

A. Whenever a product is specified by brand name, a substitute brand, equal to that named, may be submitted for approval subject to the requirements of Article 5 of the General Conditions.

1.04 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS

A. The requirement to submit product data and samples for approval will not be waived for any reason.

1.05 SHOP DRAWINGS

A. Submit 6 copies of each shop drawing required by the Specifications. Show the information, dimensions, connections, and other details necessary to insure that the shop drawings accurately interpret the Contract Documents. Show adjoining construction in such detail as required indicating proper connections. Where adjoining connected construction requires shop drawings or product data, submit such information for approval at the same time so that connections can be accurately checked.

B. The shop drawings will be reviewed and two stamped copies returned. If returned copies are stamped "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly resubmit 6 copies of shop drawings meeting Contract requirements.

1.06 PRODUCT DATA

A. Submit 4 copies of each item of product data required by the Specifications. Modify product data by deleting information that is not applicable to the project or by marking each copy to identify pertinent products. Submit supplement standard information, if necessary, to provide additional information applicable to the project.

B. The product data will be reviewed and two stamped copies returned. If returned copies are stamped "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly resubmit 6 copies of product data meeting Contract requirements.

1.07 SAMPLES

A. Submit three (3) (unless a different number is specified) of each sample required by the Specifications. Samples shall show the quality, type, range of color, finish, and texture of the material intended to be furnished for the Work.

B. Samples will become the property of the Owner when submitted unless specifically stated otherwise, and will not be incorporated in the Work.

1.08 PAYMENT SUBMITTAL

A. Prepare and submit an application for payment on the Owner Application for Payment form. A pre-approved detailed estimate is required to be submitted for the purpose of payment. Payments will be made based on the determination of percentage of Work completed unless otherwise directed by the Owner's Representative and/or the Contracting Officer.

1.09 SUBMITTAL REQUIREMENTS

A. Identify all submittals by project title and number. Include Contractor's name, date, and revision date. On shop drawings, product data, and samples, also include name of supplier and subcontractor (if any), and applicable specification section number. Stamp each submittal and initial or sign the stamp to certify review and approval of submittal.

B. If a submittal is based on, or the result of, a change order or field order to the Contract documents include copies of applicable change order or field order with the submittal.

C. Transmit each submittal to:

Mr. Marc J. Garofalo, MPA, CCTC

Town/City Clerk

1 Elizabeth Street

Derby, CT 06418

Enclose one copy of transmittal letter and shop drawing with each submittal.

D. Send one original and four copies of each transmittal letter and shop drawings to the Owner's Representative:

Mr. Glenn D. Jarvis, PE

Principal Structural Engineer

SLR International Corporation

99 Realty Drive

Cheshire, CT 06410

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 33 00

SECTION 01 35 20 - ASBESTOS AND OTHER HAZARDOUS MATERIALS NOTICE (43 Anson Street)

PART 1 GENERAL

1.01 RELATED DOCUMENTS AND SECTIONS

A. All sections as listed in the TABLE OF CONTENTS are hereby made a part of this SECTION by reference thereto. Note also all Addenda.

B. Examine all Documents (if applicable) and information – SLR International Corporation (SLR) Asbestos Materials Survey Report dated October 2021, and other Sections of the Specifications for requirements affecting the Scope of Work within the Site Building of this Section whether or not such Work is specifically mentioned in this Section.

1.02 ASBESTOS CONTAINING MATERIALS

A. This SECTION provides notice that asbestos-containing materials (ACM) exist at the Site building (shown in Table 1 of the SLR Asbestos Materials Survey Report). All ACMs are to be removed under the Work of this Contract. Refer to SECTION 020800 ASBESTOS ABATEMENT and all documentation (if applicable) for the types, quantities and locations of ACMs to be abated at this Site. The Contractor shall notify each subcontractor that ACMs exist in the building and that testing documents are available for review. Testing documents identify all known ACMs, as well as previously suspect building materials, which have been tested and found to be non-asbestos containing. This information will be provided for review by request.

B. Should the Contractor or any subcontractors discover any ACMs, or other hazardous materials during the performance of the Work of this Contract, the Contractor shall immediately notify the Designer and other specified entities having responsibility for hazardous materials at the site. The Contractor shall then request instructions for appropriate action and removal by qualified personnel. The Contractor shall be responsible for ensuring that proper measures are implemented to control and eliminate the risk of workers and the public from exposure to the hazardous materials.

C. The Contractor shall designate a senior on-site employee to act as liaison between the Contractor and the Designer, who shall be responsible for the coordination of any hazardous materials issues which may arise.

D. The requirements of this SECTION shall apply to all ACMs or other hazardous materials not specifically identified for removal by other sections of the Contract Documents.

E. It shall be the sole responsibility of the Contractor and its subcontractors to implement any and all measures required or appropriate to the protection of the health and safety of all

workers and members of the public with respect to the identification and discovery of previously unknown ACMs or other hazardous materials during the Work of this Contract.

F. To the fullest extent permitted by law, the Contractor and its subcontractors shall indemnify and hold harmless Designer, SLR International Corporation (SLR), Connecticut Department of Energy and Environmental Protection (CTDEEP), and Owner, and their agents and employees from and against all claims, damages, losses and expenses, including, but not limited to, attorney's fees arising out of or related to the performance of the Work of this Contract. This shall include the discovery or identification of ACMs or other hazardous materials, provided that any such claim, damage, loss or expense, if attributable to bodily injury, sickness, disease, or death, or damage to, or destruction of tangible property (other than specified by work), including the loss of use resulting therefrom, and is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of same, or anyone for whose acts any of same may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

1.03 LEAD CONTAINING MATERIALS

A. For the purpose of bidding the work of this Contract, it shall be assumed that all existing painted surfaces are coated with lead containing paint.

B. All work of this Contract shall conform to those standards set by all applicable Federal, State, and Local regulations, laws, ordinances, and guidelines in such form in which they exist at the time of performance of the work of this Contract, and as may be required by subsequent amendments or regulations.

C. The Contractor and its subcontractors shall, at their own cost and expense, comply with all rules, regulations, laws, and ordinances required by Federal, State and Local authorities having jurisdiction over the handling, storage and disposal of lead containing materials and lead contaminated waste materials.

D. The Contractor and its subcontractors shall, at their own cost and expense, perform all OSHA required compliance activities and testing as well as all required testing of waste streams by the U.S. EPA Toxic Characteristic Leaching Procedure (TCLP) for determining waste stream characterization. The Contractor shall submit to the Engineer all lead compliance programs, exposure assessments and TCLP test results generated.

E. A copy of the test results generated from a limited paint chip sampling and analysis program is available upon request. Varying levels of lead were detected in the surfaces tested. All painted surfaces have therefore been assumed to be lead containing for the purposes of bidding this work.

1.04 OTHER HAZARDOUS MATERIALS (OHM)

A. During the Work of this Contract, other hazardous materials (i.e., lead paint, Polychlorinated Biphenyls, Chlorofluorocarbon, etc.) may be discovered in the building.

B. The requirements of this SECTION shall apply to all ACMs or other hazardous materials not specifically identified for removal by other sections of the Contract Documents.

C. All OHM Work shall conform to standards set by all applicable Federal, State, and Local regulations, laws, ordinances, and guidelines in such form in which they exist at the time of performance of the Work of this Contract, and as may be required by subsequent amendments or regulations.

D. The Contractor and its subcontractors shall, at their own cost and expense, comply with all rules, regulations, laws and ordinances required by Federal, State and Local authorities having jurisdiction over the handling, storage and disposal of OHMs.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 35 20

SECTION 01 35 20 - ASBESTOS AND OTHER HAZARDOUS MATERIALS NOTICE (187-190 Derby Avenue)

PART 1 GENERAL

1.01 RELATED DOCUMENTS AND SECTIONS

A. All sections as listed in the TABLE OF CONTENTS are hereby made a part of this SECTION by reference thereto. Note also all Addenda.

B. Examine all Documents (if applicable) and information – SLR International Corporation (SLR) Asbestos Materials Survey Report dated October 2021, and other Sections of the Specifications for requirements affecting the Scope of Work within the Site Building of this Section whether or not such Work is specifically mentioned in this Section.

1.02 ASBESTOS CONTAINING MATERIALS

A. This SECTION provides notice that asbestos-containing materials (ACM) exist at the Site building (shown in Table 1 of the SLR Asbestos Materials Survey Report). All ACMs are to be removed under the Work of this Contract. Refer to SECTION 020800 ASBESTOS ABATEMENT and all DRAWINGS (if applicable) for the types, quantities and locations of ACMs to be abated at this Site. The Contractor shall notify each subcontractor that ACMs exist in the building and that testing documents are available for review. Testing documents identify all known ACMs, as well as previously suspect building materials, which have been tested and found to be non-asbestos containing. This information will be provided for review by request.

B. Should the Contractor or any subcontractors discover any ACMs, or other hazardous materials during the performance of the Work of this Contract, the Contractor shall immediately notify the Designer and other specified entities having responsibility for hazardous materials at the site. The Contractor shall then request instructions for appropriate action and removal by qualified personnel. The Contractor shall be responsible for ensuring that proper measures are implemented to control and eliminate the risk of workers and the public from exposure to the hazardous materials.

C. The Contractor shall designate a senior on-site employee to act as liaison between the Contractor and the Designer, who shall be responsible for the coordination of any hazardous materials issues which may arise.

D. The requirements of this SECTION shall apply to all ACMs or other hazardous materials not specifically identified for removal by other sections of the Contract Documents.

E. It shall be the sole responsibility of the Contractor and its subcontractors to implement any

and all measures required or appropriate to the protection of the health and safety of all workers and members of the public with respect to the identification and discovery of previously unknown ACMs or other hazardous materials during the Work of this Contract.

F. To the fullest extent permitted by law, the Contractor and its subcontractors shall indemnify and hold harmless Designer, SLR International Corporation (SLR), Connecticut Department of Energy and Environmental Protection (CTDEEP), and Owner, and their agents and employees from and against all claims, damages, losses and expenses, including, but not limited to, attorney's fees arising out of or related to the performance of the Work of this Contract. This shall include the discovery or identification of ACMs or other hazardous materials, provided that any such claim, damage, loss or expense, if attributable to bodily injury, sickness, disease, or death, or damage to, or destruction of tangible property (other than specified by work), including the loss of use resulting therefrom, and is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of same, or anyone for whose acts any of same may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

1.03 LEAD CONTAINING MATERIALS

A. For the purpose of bidding the work of this Contract, it shall be assumed that all existing painted surfaces are coated with lead containing paint.

B. All work of this Contract shall conform to those standards set by all applicable Federal, State, and Local regulations, laws, ordinances, and guidelines in such form in which they exist at the time of performance of the work of this Contract, and as may be required by subsequent amendments or regulations.

C. The Contractor and its subcontractors shall, at their own cost and expense, comply with all rules, regulations, laws and ordinances required by Federal, State and Local authorities having jurisdiction over the handling, storage and disposal of lead containing materials and lead contaminated waste materials.

D. The Contractor and its subcontractors shall, at their own cost and expense, perform all OSHA required compliance activities and testing as well as all required testing of waste streams by the U.S. EPA Toxic Characteristic Leaching Procedure (TCLP) for determining waste stream characterization. The Contractor shall submit to the Engineer all lead compliance programs, exposure assessments and TCLP test results generated.

E. A copy of the test results generated from a limited paint chip sampling and analysis program is available upon request. Varying levels of lead were detected in the surfaces tested. All painted surfaces have therefore been assumed to be lead containing for the purposes of bidding this work.

1.04 OTHER HAZARDOUS MATERIALS (OHM)

A. During the Work of this Contract, other hazardous materials (i.e., lead paint, Polychlorinated Biphenyls, Chlorofluorocarbon, etc.) may be discovered in the building.

B. The requirements of this SECTION shall apply to all ACMs or other hazardous materials not specifically identified for removal by other sections of the Contract Documents.

C. All OHM Work shall conform to standards set by all applicable Federal, State, and Local regulations, laws, ordinances, and guidelines in such form in which they exist at the time of performance of the Work of this Contract, and as may be required by subsequent amendments or regulations.

D. The Contractor and its subcontractors shall, at their own cost and expense, comply with all rules, regulations, laws and ordinances required by Federal, State and Local authorities having jurisdiction over the handling, storage and disposal of OHMs.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 35 20

SECTION 01 41 00 - REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 COMPLIANCE

A. Comply with applicable regulatory requirements and various codes referenced in these specifications. Where conflicts exist between local, State, and/or Federal regulatory requirements, codes, or these specifications advise the Owner's Representative.

1.02 CODES

A. The referenced codes shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.

B. Electrical Work: Conform to the requirements of the 2005 National Electrical Code (NEC) unless otherwise shown or specified. The Owner's representative will make the final decision.

C. Electrical Work: Conform to the requirements of the Electrical Code of the State of Connecticut.

1.03 SITE ASSESSMENT

A. The Contractor shall submit a Site Safety Plan.

B. The Contractor shall submit a Sedimentation and Erosion Control Plan.

1.04 PERMITS AND INSPECTIONS

A. The following permits and/or certifications will be obtained by the Contractor from the appropriate permitting agencies:

1. City of Derby - Demolition Permit

1.05 DISPOSAL OF DEMOLITION DEBRIS

A. Contractor shall submit disposal site for approval.

1.06 LISTINGS

A. Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark.

1. Alternately, ETL Testing Laboratories, Inc. Product Safety Testing Listing is acceptable if the listed product has been tested to the applicable UL Standard.

1.07 DISCONNECTION OF ELECTRIC SERVICE

A. Confirm with the utility company that electric service has been disconnected from building.

1.08 DISCONNECTION OF TELEPHONE SERVICE

A. Confirm with the utility company that telephone service has been disconnected from building.

1.09 DISCONNECTION OF GAS SERVICE

A. Confirm with the utility company that gas service has been disconnected from building.

1.10 DISCONNECTION OF WATER SERVICE

A. Confirm with the utility company that gas service has been disconnected from building.

1.11 DISCONNECTION OF SEWER SERVICE

A. Existing sewer service is provided by City of Derby who will disconnect the lateral at curb and cap the line.

PART 2 PRODUCTS (Not Used)

PART 3 UTILITY DISCONNECTION LETTERS

A. 43 ANSON STREET

B. 187-189 DERBY AVENUE

END OF SECTION 01 41 00

SECTION 01 50 00 - CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

PART 1 GENERAL

1.01 PROJECT CONDITIONS

A. Provide construction facilities and temporary controls necessary for the Work.

1.02 TEMPORARY LIGHT AND POWER

A. Temporary light and power will be provided at the Contractors cost by use of gas-powered generators or by temporary service from electric company.

1.03 TEMPORARY WATER

A. Drinking water will be provided by the Contractor for employees and other personnel.

1.04 TEMPORARY TOILETS

A. Provide temporary toilet facilities for Contractors and subcontractors employees engaged on the project. Locate toilets where directed and maintain them in a sanitary condition.

NUMBER OF EMPLOYEES	MINIMUM NUMBER OF FACILITIES*
20 or less	1 toilet
20 or more	1 toilet and 1 urinal per 40 employees
200 or more	1 toilet and 1 urinal per 50 employees

*Toilet/Urinal combinations shall count as only one facility.

1.05 BARRIERS AND ENCLOSURES

A. Provide barriers during performance of the Work to:

1. Prevent unauthorized entry to work areas.
2. Allow for Owner’s entry to the Site.
3. Protect existing facilities and adjacent properties from damage.
4. Protect vehicular and pedestrian traffic.

B. Temporary Dust Barriers: Provide temporary dust barriers to prevent the spread of dust from the work areas. Construct the dust barriers of wood framing sheathed with 6 mil polyethylene film. Secure the dust barriers in place without damaging existing construction.

C. Scaffolding, Hoist, and Equipment Barriers: Provide temporary fence enclosures as required to prevent unauthorized persons from coming in contact with ground supported scaffolding, hoists, and equipment.

1.06 TEMPORARY FENCE ENCLOSURE

A. Provide temporary fence not less than 8 feet in height above grade.

B. Fabric: #9 gage galvanized steel, or equal gage aluminum, woven together into 2 inch diamond mesh, with both top and bottom edges having a twisted and barbed finish.

C. Screen: Dark green screen shall be attached to all perimeter fencing.

D. Posts, Rails, and Connections: Standard galvanized steel products of an approved manufacturer, of the size and types as required and approved. Provide top and bottom rails between all posts secured with bolted connections.

E. Gates: Provide access gates for passage of employees and materials, complete with padlock. Fabricate gates with galvanized steel pipe perimeter covered with same fabric specified for fence. Furnish the Owner's Representative with 2 keys per gate.

F. Erection: Set posts 4 feet into the ground and not more than 10 feet apart. Install bottom rail not more than 2 inches above existing grade. Pull fabric taut and wire tightly to posts and rails at not more than 2 feet on center. Fence may be self-supporting at Owner's discretion.

1.07 PROTECTION OF WORK AND EXISTING PROPERTY

A. Protect Work Areas and adjacent buildings during performance of the Work.

1.08 FIRE PREVENTION

A. Take precautions necessary to prevent fires.

B. Fuel for cutting and heating torches shall be gas only, and shall be contained in Underwriters Laboratory approved containers.

C. Furnish and maintain a currently inspected 20 pound capacity multi-class A B C fire extinguisher in the immediate vicinity where welding tools or torches are in use.

D. Furnish and maintain a currently inspected fire extinguisher of the appropriate class and size whenever the temporary storage of materials changes that areas classification of fire load or life safety.

E. Do not use flammable liquids, other than those specified, within a building without written approval from the Owner's Representative.

F. Tarpaulins shall be flameproof and shall be securely anchored when attached to scaffolding or when used to enclose any portion of a building.

1.09 ACCESS ROADS

A. Routes of ingress and egress on the premises to the location of the Work shall be as shown on the plans.

B. Keep designated access roads clear of dirt and debris resulting from the Work.

C. Provide means of removing mud from vehicle wheels before entering paved roads. If excessive mud/soil is tracked onto public roads, the Contractor shall be required to clean roads at no additional cost to the Owner.

1.13 PARKING

A. Parking areas shall be where designated by the Owner's Representative.

1. Keep designated parking areas clear of dirt and debris resulting from the Work.

2. If requested, register vehicles which are to be parked at the Facility with Owner's representative.

3. Remove ignition key from unattended vehicles and lock doors.

1.14 RUBBISH REMOVAL

A. Clean up and containerize the rubbish (refuse, debris, waste materials, and removed materials and equipment) resulting from the Work at the end of each work day and leave work areas broom clean, except where more stringent cleaning is specified. Locate containerized rubbish where directed.

B. Remove rubbish from property at least once a week and more often if the rubbish presents a hazard. Properly dispose of rubbish.

C. Burning of rubbish will not be permitted.

1.15 RELOCATION AND REMOVALS

A. Should a change in location of any construction facilities and temporary controls be necessary in order to progress the Work properly, remove and relocate such items as directed.

B. Remove the construction facilities and temporary controls when they are no longer required. Restore permanent facilities used to their original condition or better.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 50 00

TECHNICAL SPECIFICATIONS

INTRODUCTION TO TECHNICAL SPECIFICATIONS

These Technical Specifications consist of provisions, requirements and specifications that shall apply to various items of work that constitute the construction as defined by this Contract.

Within the Contract Documents the following definitions shall apply:

1. Contract Documents: Shall mean that group of documents included in the agreement between the Owner and the Contractor as follows; Invitation to Bid, Instruction to Bidders, Bid Proposal Form, Contract Forms, General Conditions, Supplemental Conditions, Special Conditions, Notice to Contractor, Technical Specifications, Special Provisions, Standard Specifications, and Supplemental Standard Specifications.

2. Standard Specifications: The Connecticut Department of Transportation, Standard Specifications for Highways and Bridges Form 818, as revised by all Interim Supplemental Specifications (otherwise referred to collectively as the Standard Specifications) is hereby made part of this contract, as modified by these Special Provisions. Only Division II "Construction Details," Division III "Materials Section" and referred to portions of Division I "General Requirements and Covenants" of the Standard Specifications shall apply. It should also be noted that these sections of the Standard Specifications may be supplemented, revised amended and/or replaced by the Special Provisions. The Special Provisions shall govern as modified and shall supersede the requirements of the Standard Specifications.

   It should be noted that all references to the Articles for "Method of Measurement" and "Basis of Payment" of each Section of Division II of the Standard Specifications Sections shall be deleted and replaced with the following:

   "Measurement and Basis of Payment – The work under this Section will not be measured for payment unless otherwise noted in the Bid Proposal. Payment for this work, complete in place, including all materials, equipment, tools, labor and incidentals thereto for the satisfactory completion of the work shall be included in the appropriate various Bid Items that are listed in the Bid Proposal".

   Within the referred to portions of the Standard Specifications wherein the following terms are used, they shall mean respectively:

   Engineer, Owner: City of Derby, CT acting directly or through a duly authorized representative.

Inspector: Glenn D. Jarvis of SLR International Corporation acting directly or through a duly authorized representative assigned to make inspections of the work performed and materials furnished by the Contractor.

Laboratory: Contractor responsible for conducting and paying for all field and laboratory testing required. Laboratory shall be certified by AASHTO.

3. Applicable Safety Code: shall mean the latest edition including all amendments, revisions, and additions thereto of the Federal Department of Labor, Occupational Safety and Health Administration's "Occupational Safety and Health Standards" and "Safety and Health Regulations for Construction" State of Connecticut, Labor Department, "Construction Safety Code," or "Building Code," whichever is the more stringent for the applicable requirement.

4. Regulatory Agency(ies): Regulatory Agency(ies) shall be defined as the governing body or authority having jurisdiction over or responsibility for a particular activity within the scope of this Contract. They may be as specifically defined within the Contract Documents; otherwise the Contractor shall be responsible for determining and complying with the Regulatory Agency(ies) having jurisdiction in the local area of the proposed work under this Contract.

5. Item Numbering System: Item numbers appearing in these Contract Documents consist of a six-digit number and generally conform to the CSI specifications.

6. Coordination of Plans and Specifications and Other Contract Requirements:

   All requirements indicated on the Contract Drawings or in the Special Provisions, the Standard Specifications, the Supplemental Specifications, or other Contract provisions shall be equally binding on the Contractor, unless there is a conflict between or among any of those requirements. In the case of such a conflict, the order of governance among those requirements, in order of descending authority, shall be as follows:

   1. Environmental Permits.
   2. Technical Specifications;
   3. Contract Drawings (enlarged details on plans, used to clarify construction, shall take precedence over smaller details of the same area. Information contained in schedules or tables, titled as such, shall take precedence over other data on plans);
   4. General Specifications
   6. Standard Specifications and other Contract requirements

SECTION 02 08 00 - ASBESTOS ABATEMENT (43 Anson Street)

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all sections within DIVISION 1 – GENERAL REQUIREMENTS that are hereby made a part of this Section. Note also all Addenda.

1.02 RELATED REQUIREMENTS

A. Examine all Attachment and/or Documentation for 43 Anson Street, and all other Sections of the Specifications for requirements affecting the Work of this Section whether or not such Work is specifically mentioned in this Section.

B. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under the Contract.

C. The following items are closely related to this Work but not included in this Section, and will be performed under the designated Sections.

1. Section 020800 – Hazardous Materials Abatement;
2. Section 013520 – Asbestos and Hazardous Materials Notice;
3. Section 011000 – Summary of the Work;
4. Section 013113 – Project Schedule;
5. Section 013119 – Project Meetings;
6. Section 013300 – Submittals;
7. Section 014100 – Regulatory Requirements;
8. Section 015000 – Construction Facilities Temporary Controls;
9. Section 024116 – Structure Demolition;
10. Section 310101 – Site Restoration;
11. Section 312515 – Erosion and Sediment Control; and,
12. Section 340113 – Operation and Maintenance of Roadways.

1.03 DESCRIPTION OF WORK

A. PROJECT DESCRIPTION

The Asbestos Abatement Contractor (CONTRACTOR) shall furnish all labor, materials, equipment, and services for the removal and disposal of all specified asbestos-containing materials (ACM), asbestos contaminated materials, and asbestos contaminated demolition debris, throughout the Site building located at 43 Anson Street in Derby, Connecticut (CT).

1. The project involves the full containment removal of all specified interior ACMs including, and on wood substrates, and asbestos-contaminated surfaces/materials located throughout the Project Areas.

More specifically, the following ACM/ACM contaminated materials to be removed and disposed of as part of the scope of work:

Material Description	Location and Estimated Quantity[1]	Asbestos Analytical Result
Joint Compound[2, 3]	Throughout[2] – 25,000 SF	3-5%
Roof Flashing at Parapet Wall[2]	Roof[2]/Beneath Parapet Cap (atop Asphalt System) – 275 SF	5-7%
Mopcoat		1.4%
Roof Chimney Flashing[2]	Roof[2] – 10 SF	5-10%
Roof Multi-layer Flat Roofing[2]	Roof[2] – 2,300 SF	5-7%
Rolled Asphalt Shingle		3.2%
Asphalt Patch		5.7%
9"x9" Floor Tile	3rd Floor, Apt 5, Under Floating Wood Floor – 100 SF	2%

NOTE: SF = Square Feet

[1]Estimated quantities are based on a cursory field evaluation and actual quantities may vary significantly, especially due to ACMs being present in hidden areas not evaluated as part of this survey, covered by loose items, and/or inaccessible areas discovered during this survey (such as below-grade/below concrete floor slabs and exterior foundation wall mastics, if applicable).

[2]AMC Environmental, LLC (Report Dated October 19, 2020) results

[3]Material has cross-contaminated surrounding areas/finish and substrate building materials

In addition to the above, gray glaze associated with windows and the mopcoat associated with the roof (and associated wood substrate) are less than 1% asbestos (<1%) and must be appropriately disposed of as asbestos.

2. The CONTRACTOR is responsible for removing non-contaminated movable objects and equipment within the project areas prior to abatement activities. Fixed items within project areas shall be wet wiped/decontaminated while under full containment.

3. CONTRACTORS are required to verify the quantities of materials prior to the bid deadline, including the dimensions and locations of areas requiring abatement as well as the types of materials to be abated. If further investigation time is required for the quantity verification, arrangements shall be made as needed. This estimation shall be performed prior to the submission of the bid. Bidders shall inform the ENGINEER (SLR International Corporation) of any discrepancies between the quantities and types of materials specified herein and those verified to be present by the Bidder. If appropriate, an adjustment shall be made as to the types and/or quantities to be included in the Bid. If no discrepancies with the types and/or quantities of materials to be abated are brought to the attention of the ENGINEER prior to the Bid due date, it will be understood that the Bidders are in agreement with the types and quantities of materials specified herein, and no change orders will be allowed for these materials if quantity discrepancies are identified after bids are received.

4. The CONTRACTOR shall include in the base bid all costs for Pre-cleaning and disposal of all debris present and cleanup of contaminated items shall also be conducted in each work area.

5. In the event that additional (currently obscured) types and/or quantities of materials are to be removed, the CONTRACTOR shall refer to the Unit Pricing Section for applicable unit pricing to be used in the work of this project. Unit prices shall be submitted per shift rates (8-hour) per supervisor and per each worker shown within the City of Derby's bid form respective of each building. For a material to be verified as an extra, the CONTRACTOR shall notify the ENGINEER of the conditions believed to warrant a claim prior to the disturbance of the material. The ENGINEER shall field verify the CONTRACTOR'S claim, and if deemed an extra, the contract price shall be adjusted by the unit price or through negotiation. No claims for any increase in the contract price shall be considered if the material has been removed by the CONTRACTOR without prior authorization by the ENGINEER.

6. The CONTRACTOR is responsible for conducting all OSHA related safety and structural investigations for general and roofing conditions within the building that could pose a hazard to their workers. The CONTRACTOR shall include in their base bid all costs for performing these investigations and corrective measures required to abate any unsafe conditions and protect workers during abatement activities.

B. GENERAL SCOPE OF WORK

The following is the General Scope of Work at a minimum, required to be performed by the CONTRACTOR for asbestos abatement work. The CONTRACTOR shall adhere to the Scope of Work outlined below and any additional requirements stated herein.

1. Work area preparation, including pre-cleaning, installation of critical barriers and polyethylene sheeting, construction of decontamination facilities, work area enclosures, sealing, isolation, and other activities as directed by the ENGINEER.

2. Installation and operation of HEPA filtration units sufficient to achieve a minimum of four to six air changes per hour in each containment. The exact locations of HEPA filtration units, decontamination units, and other stationary equipment shall be coordinated with the ENGINEER.

3. Removal and disposal of all specified ACMs, asbestos contaminated materials and non-ACMs as specified herein. Dispose of all specified materials and debris as asbestos waste in accordance with Connecticut regulations.

4. Pre-cleaning of all asbestos-containing debris, as necessary, in all work areas prior to abatement.

5. Encapsulation of all abated surfaces in each work area.

6. Furnishing of all labor, materials, equipment, and services required for all work included

in this specification.

7. Compliance with all applicable federal, state, and local regulations as well as all requirements set forth in these specifications.

8. Decontamination, teardown and clean up following abatement activities.

9. Performance of any other work or activities required by this specification, applicable regulations, or as necessary to perform a complete job to the satisfaction of the ENGINEER.

10. The ENGINEER reserves the right to collect samples of any suspect ACM to verify that the asbestos has been satisfactorily removed by the CONTRACTOR in accordance with the Specifications.

C. SPECIFIC SCOPE OF WORK

The following Work shall be conducted for this project. Examine all documents pertaining to asbestos for full extent and locations of Work to be conducted.

1. General Building Areas

   a. The CONTRACTOR is responsible for the installation of temporary lighting in all work areas (as applicable) and shall include all costs to provide a licensed electrician to assess the facility electrical conditions for making all necessary hookups to existing power for the abatement work (if unavailable by Owner).
   b. Remove and dispose of ACM from all specified equipment, piping, floors, walls, ceilings, and other components. Coordinate this work with other contractors at the site and the ENGINEER. Coordinate all system shutdowns with the Owner in advance.

2. (Project Areas)

   All of the above-described work shall be conducted within full containment with negative pressure and three-stage decontamination unit(s), unless otherwise noted (*i.e.,* roof removal, which may require a remote decontamination unit).

3. Refer to Division 1 for the scope of work required by unit prices and the pricing of same. Unit prices shall be part of the base bid and shall be utilized for ACM's not addressed in the Contract Documents.

1.04 SEQUENCE OF WORK

The following provisions shall apply for asbestos abatement work as identified by this section. The CONTRACTOR shall apply these provisions to all work areas throughout the building.

A. The CONTRACTOR shall decontaminate, remove, and properly dispose of all specified ACM.

B. Prior to the commencement of the work, all stored items and general items in each area, as well as all movable furnishings and other miscellaneous items in all work areas deemed to be non-contaminated, except as noted herein, shall be removed from each work area and disposed as construction debris. All non-contaminated non-movable items in all work areas, including but not limited to electrical panels, equipment, shelving, etc. shall be covered with two (2) layers of 6-mil polyethylene sheeting and sealed with duct tape.

C. All critical barriers shall be sealed with plywood and two (2) layers of six-mil polyethylene sheeting and negative pressure established.

D. The CONTRACTOR shall pre-clean all floor areas, floor drains and non-movable items of any asbestos debris present. Pre-cleaning shall include the use of wet misting, wet wiping and/or HEPA vacuuming of all affected surfaces (as applicable).

E. All work shall take place under full containment, and all workers shall utilize appropriate protective coveralls (*i.e.,* Tyvek Disposable Suit) and, at a minimum, a half-face negative pressure respirator equipped with HEPA cartridges.

F. All work shall be performed in accordance with all federal, state, and local regulations governing asbestos abatement. The CONTRACTOR shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling and disposal of asbestos waste, and protection of workers, visitors to the work site, and persons occupying areas adjacent to the work site.

G. The scheduling and sequencing of the Work of this Contract shall be proposed by the CONTRACTOR for approval by the ENGINEER. Multiple and distinct phases needing separate notifications may be required.

1.05 WORK INCLUDED

The total scope of work shall not be based solely on the information provided in this specification. The CONTRACTOR is required to perform quantity take-offs and measurements of the amount of material to be removed and decontaminated using all Documentation, and based on a site visit. Work shall be based on the CONTRACTOR'S own quantity take-offs of the work required by examination of the documentation and Site conditions.

1.06 SPECIAL CONSIDERATIONS

The Owner will pay for the first set of final clearance air sampling and analyses for each work area. In the event that these analyses do not pass the clearance criteria, all subsequent air sampling and analyses for the affected work areas that need to be rerun will be paid for by the CONTRACTOR. Phase Contrast Microscopy (PCM) shall be utilized for clearance of all areas less than or equal to 1,500 square feet or 500 linear feet of ACM; otherwise, Transmission Electron Microscopy (TEM) clearance air testing will be analyzed by the TEM method in Appendix A of 40 CFR Part 763 subpart E. All additional monitoring and sampling costs will be automatically deducted from the

CONTRACTOR'S contract price until the area in question passes the clearance criteria established in this section.

1.07 SUBMITTALS

A. Before preparations are allowed to begin, the CONTRACTOR shall submit the following to the ENGINEER for approval:

1. Copies of all notifications, permits, applications, licenses, and like documents required by federal, state, or local regulations obtained or submitted in proper fashion,

2. CONTRACTOR'S written site-specific Health and Safety Plan that includes Hazardous Communication, Respiratory Protection, Lockout/Tagout and Confined Space Entry Programs with site-specific written plans.

3. Copies of CONTRACTOR'S CTDPH licenses for asbestos,

4. A sketch of the proposed containment(s) that includes all entrances, HEPA exhausts, and critical barriers,

5. A proposed timetable for the complete job that shows the preparation, removal and disposal, clean up, testing, and teardown portions of the job for each work area. A critical path showing completion dates for each area shall be included,

6. Proof of the abatement supervisor's certification and training, including the most recent refresher course completed and current CTDPH licenses for asbestos,

7. Proof of each asbestos abatement worker's certification and training, including the most recent refresher courses completed and current CTDPH licenses for asbestos,

8. Written site-specific Respiratory Protection Program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used on this specific job,

9. Proof that the abatement supervisor and workers have been examined by a qualified physician within the past 12 months, and are capable of wearing respiratory protection and are able to perform asbestos abatement work and other related activities,

10. Proof that the asbestos abatement supervisor and workers have been fit-tested within the past twelve months for using a negative-pressure respirator equipped with HEPA filter cartridges.

11. Proposed electrical safeguards to be implemented, including but not limited to location of transformers, 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,

12. A list of all equipment to be used on site, by make and model, including ventilation equipment, HEPA vacuums, etc.,

13. Chain of Command of responsibility at work site including supervisors, foreman, and competent person, their names, and resumes,

14. Proposed Emergency Plan and route of egress from work areas in case of fire or injury, including the name, directions/map and phone number of nearest medical assistance center,

15. The name and address of the CONTRACTOR'S personal air monitoring and testing laboratory including certification of Connecticut accreditation and proof of NIOSH proficiency in the asbestos Proficiency Analytical Testing (P.A.T.) Program,

16. An SDS or equivalent, in accordance with the OSHA Hazard Communication Standard (29CFR 1910.1200) for all products and materials proposed for use on the project. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated. A copy of the CONTRACTOR'S complete OSHA Hazard Communication Standard will also be submitted and be kept on site at all times describing the CONTRACTOR'S Asbestos and Hazardous Materials HazCom Program,

17. A current negative exposure assessment in accordance with OSHA 1926.1101 providing recent data (less than six months old) indicating personal exposures to airborne asbestos during Class I operations for comparable workers. This data must show that workers' exposures to airborne asbestos on an eight-hour time weighted average (TWA) basis are less than 0.1 fibers per cubic centimeter of air (f/cc),

18. Any other documentation that applies and is called for by this or other sections of the specifications.

19. No work on the project will be allowed to begin until the ENGINEER, as listed herein, approves the Pre-Job Submittals. Any delay caused by the CONTRACTOR'S refusal to submit this documentation in a timely manner does not constitute a cause for change order or a time extension.

20. CONTRACTOR shall specify and submit qualification information as described herein for an on-site Supervisor who is fully qualified in all aspects of hazardous materials abatement practices and procedures, and have, in addition to the training specified elsewhere in these specifications. above, a minimum of one year experience working with hazardous materials of this nature, 8 hours training in managing hazardous waste operations, and current certification in first aid and cardiopulmonary resuscitation (CPR) by a recognized approved organization. Submit list of comparable projects that involve this type of work.

21. Copies of appropriate medical monitoring results as required by 29 CFR 1910.120 or a notarized statement by the examining medical doctor that such examinations took place according to 29 CFR 1910.120 and when, for each employee to be used on project.

22. Name, address, and ID number of the hazardous waste hauler(s), waste transfer route(s), and proposed disposal (incineration/recycling) site(s).

B. Upon completion of the asbestos and hazardous materials abatement work, the CONTRACTOR shall submit the following to the OWNER and/or ENGINEER:

1. All manifests and landfill receipts detailing disposal of all asbestos and asbestos-containing waste materials generated by the work.

2. All analytical results of personal asbestos air samples collected in accordance with OSHA regulations to verify that the 8-hour time weighted average (TWA) concentrations of asbestos fibers in the breathing zone of the workers has not exceeded the permissible exposure limit (PEL) of 0.1 f/cc.

3. A notarized copy of the entry-exit logbook.

4. Copies of manifests, bills of lading and receipts acknowledging disposal of all hazardous waste materials, drums, tanks and transformers from the project, showing delivery date, quantity, and appropriate signature of recycling/incineration site's authorized representative.

1.08 TRAINING AND QUALIFICATIONS

A. Worker Training

All personnel who work on this project shall be provided, at a minimum. the following training:

1. The health hazards of asbestos including the nature of asbestos related diseases, routes of exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods, and health basis for standards.

2. Personal protective equipment (PPE) including the types and characteristics of respirator classes, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage of respirators, field testing the face piece to face seal (positive and negative pressure fit tests), qualitative and quantitative fit testing procedures, variations between laboratory and field fit factors, factors that affect respirator fit, selection and use of disposable clothing, use and handling of washable clothing, non-skid shoes, gloves, eye protection, and hard hats.

3. Medical monitoring requirements for workers including required and recommended tests, reasons for medical monitoring and employee access to records.

4. Air monitoring procedures and requirements for workers including description of equipment and procedures, reasons for monitoring, types of samples and current standards with recommended changes.

5. Work practices for asbestos and hazardous materials abatement including purpose, proper construction and maintenance of airtight plastic barriers, job set-up of airlocks, posting of warning signs, engineering controls, electrical and ventilation system lockout, proper working techniques, waste cleanup, storage and disposal.

6. Personal hygiene including entry and exit procedures for the work area, use of showers and

prohibition of eating, drinking, smoking, and chewing in the work area.

7. Special safety hazards that may be encountered including electrical hazards, air contaminants (CO, wetting agents, encapsulants), fire and explosion hazards, scaffold and ladder hazards, slippery surfaces, confined spaces, heat stress, and noise.

8. Workshops allowing both supervisory personnel and abatement workers the opportunity to observe and experience the construction of containment barriers and decontamination facilities.

9. Lockout/Tagout and Confined Space Entry procedures.

B. Site Supervisor Qualifications

1. The CONTRACTOR shall provide one Site Supervisor, whose responsibilities include coordination, safety, security, and execution of all phases of the asbestos and hazardous materials abatement project. The Site Supervisor will not be used as an abatement worker, and will be assigned full-time to the project.

2. The Site Supervisor shall be fully qualified in all aspects of asbestos and hazardous materials abatement practices and procedures, and have a one-week asbestos training course within the previous year prior to the commencement of asbestos related work. The asbestos training course will cover all topics listed above as well as training in contract specifications, liability insurance and bonding, legal considerations related to abatement, establishing respiratory protection medical surveillance programs, and EPA and OSHA record-keeping programs.

3. At least one licensed asbestos supervisor should be on site at all times who is certified in CPR and Emergency First Aid by an appropriate authority, as well as having received the required training under the OSHA Bloodborne Pathogen Standard.

4. The Site Supervisor shall be fully qualified and experienced in all aspects of hazardous waste operations to be conducted as part of this work and shall have an additional 8 hours of training in managing Hazardous Waste Operations.

1.09 REGULATORY SUBMITTALS

A. The CONTRACTOR shall notify the following agencies in appropriate manner and place of impending work, and shall provide evidence of notifications at the pre-construction meeting:

1. U.S. EPA, Region 1
J.F. Kennedy Federal Building
Boston, MA 02203
(10 business days in advance)

2. STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
ASBESTOS PROGRAM

410 Capitol Avenue- MS # 51 AIR
PO BOX 340308
Hartford, CT 06134
(10 business days in advance)

3. Connecticut Department of Energy and Environmental Protection (DEEP)
Compliance Analysis & Coordination Unit
Bureau of Air Management
79 Elm Street
Hartford, CT 06106-5127

4. Local Fire and Police Departments, Building Department, and other state or city agencies as required by law or ordinance.

B. Permits

The CONTRACTOR shall be responsible for securing and paying for all necessary permits for asbestos and hazardous materials related work, including hauling, removal and disposal, building, fire, tank permits, and materials usage, Police and Fire details, or any other permits required to perform the specified work.

C. Fees, Licenses, Patents, and Copyrights

1. The CONTRACTOR shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or process in the performance of the job specified herein. The CONTRACTOR shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights.

2. The CONTRACTOR shall hold the Owner and the ENGINEER harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights.

3. If the Contract Specification requests the use of any product, design, invention, or process that requires a licensing fee or royalty fee for use in the performance of the job, the CONTRACTOR shall be responsible for the fee or royalty fee and shall disclose the existence of such rights.

4. The CONTRACTOR shall be responsible for costs of all licensing requirements, where applicable, and notification requirements and all other fees related to the CONTRACTOR'S ability to perform the work in this section.

1.10 SAFETY CONSIDERATIONS

A. This project is subject to compliance with Public Law 91-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all Rules and Regulations pertaining to construction, including Volume 36, Numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S. Department of Labor.

B. In addition to any detailed requirements of the Specification, the Abatement Contractor shall at his own cost and expense comply with all laws, ordinances, rules and regulations of Federal, State, Regional and Local Authorities regarding handling and storage of asbestos, lead and other hazardous waste materials.

C. All staging and scaffolding (if needed) shall be furnished and erected by the CONTRACTOR in accordance with all applicable requirements, and be maintained in safe condition by him at no additional cost to the Owner.

D. The CONTRACTOR is responsible for using safe procedures to avoid electrical hazards. When a hazard exists, work will be stopped and power will be shut off and checked before work begins again. All electrical panels and exposed wires within the work site shall be de-energized prior to the commencement of any wetting or removal operations. All extension cords and power tools used within the work area shall be attached to Ground Fault Circuit Interrupters (G.F.C.I.) in accordance with 1910.120 and the CONTRACTOR'S Lockout/Tagout and Confined Space Entry programs.

1.11 SECURITY

A. The Owner will provide specific access as required during the project to the CONTRACTOR and personnel assigned to the project. The access shall be determined by the Owner. The CONTRACTOR will be responsible for the security of the building involved in the abatement project. The CONTRACTOR shall maintain security in the building using appropriate secure barriers and locks. It will also be the CONTRACTOR'S responsibility to allow only authorized personnel into each work area, and to secure all assigned entrances and exits at the end of the workday. Authorized personnel include licensed CONTRACTOR staff, the Owner, ENGINEER, and all other personnel with the appropriate training, medical approval, respirator fit testing, and personal protective equipment. The CONTRACTOR shall cover each window, door, grate, or other opening made by abating these components with secured plywood coverings to prevent unauthorized access into the building.

B. Any person entering or leaving the contained areas must sign the CONTRACTOR'S bound logbook and enter the date and time. The logbook must be located immediately outside the entrance to the Decontamination Unit at all times, and be open for inspection by the ENGINEER.

1.12 REFERENCES

The following references are cited as applicable publications:

A. Environmental Protection Agency
Asbestos Regulations (NESHAPS) Title 40 CFR Part 61, as currently amended. Guidance for Controlling Friable Asbestos Containing Materials in Buildings, Final Rule and Notice. Asbestos Hazard Emergency Response Act (AHERA) Title 40 CFR Part 763.

B. Occupational Safety and Health Administration
Title 29 CFR 1910.1001 (amended)
Title 29 CFR 1926.1101 (amended)

Title 29 CFR 1926.62 (amended)

C. Connecticut Department of Health (DPH)
Title 19a-CHAPTER 368l CARCINOGENIC SUBSTANCES Section 19a-332 through 19a-333
Title 20-CHAPTER 400a Asbestos Contractors and Asbestos Consultants- Section 20-435 through 20-441
Title 19a-Health and Well-being; Subtitle 19a-332a
Title 20-Professional and Occupational Licensing, Certification

D. Connecticut Department of Energy and Environmental Protection (DEEP)

E. U.S. Department of Transportation Regulations (49 CFR Parts 172 and 173)

F. Toxic Substances and Control Act (TSCA) (40 CFR 761).

G. Hazard Communication Standard (29 CFR 1926.59).

H. Hazardous Waste Operations and Emergency Response (29 CFR 1910.120).

I. National Contingency Plan (CERCLA, Section 105).

J. Spill Prevention Control and Countermeasures Plan (40 CFR, Part 112).

K. All regulations by these and other governing agencies in their most recent version are applicable. These specifications refer to many requirements found in these references, but in no way intend to cite or reiterate all provisions therein or elsewhere. It is the CONTRACTOR'S responsibility to know, understand, and abide by all such regulations and common practices.

L. Other provisions contained in these references may, from time to time during the execution of this contract, be enforced by the ENGINEER at their own discretion.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The CONTRACTOR shall provide new materials and new or used equipment in undamaged and serviceable condition. Only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards, are to be used during the project.

A. Fire Extinguishers

The CONTRACTOR shall provide multi-purpose ABC minimum rating to A40BC fire extinguishers. The CONTRACTOR shall comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers." Fire extinguishers shall be located where they are most convenient and effective for their intended purpose, but provide not less than one

extinguisher inside each work area in the Equipment Room and one outside each work area in the Clean Room.

B. Construction Lumber

Construction lumber for critical barrier walls shall consist of nominal, fire-retardant, 2" x 4" framing, sixteen inches center to center.

C. Plastic Sheeting

The CONTRACTOR shall provide non-combustible, fire-retardant, 6-mil thick clear, frosted, or black plastic sheeting in the largest size possible to minimize seams. Spray plastic will not be allowed for use on this project.

D. Adhesive Materials

The CONTRACTOR shall provide duct tape in 2" or 3" widths, with an adhesive that is formulated to aggressively stick to plastic sheeting. The CONTRACTOR may also provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to plastic sheeting.

E. Shower Assembly

1. The CONTRACTOR shall provide a leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3' x 3' square with minimum 6' high sides and back. The CONTRACTOR shall structurally support the unit as necessary for stability and equip it with a hose bib, mounted at approximately 4'-0" above drain pan.

2. The CONTRACTOR shall provide a factory made showerhead producing a spray of water that can be adjusted for spray size and intensity. The CONTRACTOR shall feed shower with water mixed from hot and cold supply lines, arranged so that control of water temperature, flow rate, and shutoff is from inside shower without outside aid.

3. The CONTRACTOR shall provide a totally submersible waterproof sump pump with an integral float switch. The unit shall be sized to pump two times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. The unit shall be capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. The CONTRACTOR shall adjust float switch so that a minimum of 3" remains between top of liquid and top of sump pan.

F. Negative Air Filtration System

The CONTRACTOR shall provide air-filtering equipment capable of filtering particles to 0.3 micrometers at 99.97% efficiency and of sufficient quantity and capacity to cause a complete air change within the work area at least once every 15 minutes. Such equipment shall exhaust the filtered air so as to maintain a negative pressure inside the work area. Air shall flow in through the

Decontamination Unit and exhaust through the negative air filtration unit by means of flexible duct leading outside the work area, preferably outside of the building. Negative air filtration shall be in operation at all times.

G. HEPA Vacuum

The CONTRACTOR shall utilize high efficiency filter vacuums to filter particles of 0.3 micrometers or larger at 99.97% efficiency or greater. The CONTRACTOR shall obtain HEPA vacuum attachments, such as various size brushes, crevice tools, and angular tools to be used for varied application, and service the HEPA vacuum routinely to assure proper operation. Caution shall be used any time the vacuum is opened for HEPA filter replacement or debris removal. Operators shall wear protective clothing and respirators when using the HEPA vacuum. Vacuuming by conventional means is unacceptable.

H. Amended Water

For wetting prior to disturbance of asbestos-containing materials, the CONTRACTOR shall use an amended water solution. The CONTRACTOR shall provide water to which a commercial surfactant (i.e., not dish detergent) has been added. The CONTRACTOR shall use a mixture of surfactant and water, which results in wetting of the asbestos-containing material and retardation of fiber release during disturbance of the material, equal to or greater than that provided by the use of one ounce of a surfactant, consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

I. Disposal Bags

The CONTRACTOR shall provide appropriately labeled 6-mil thick leak tight plastic bags of sufficient size for application.

J. Water Service

All temporary water connections to the Owner's water source shall include back-flow protection. The CONTRACTOR shall provide heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into the work area and to the Decontamination Unit. The CONTRACTOR shall provide a UL rated 40-gallon electric hot water heater to supply hot water for each Decontamination Unit shower.

K. Electrical Service

1. The CONTRACTOR shall provide temporary power service to the Decontamination Unit sub panel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the auxiliary power source. The sub panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. The CONTRACTOR shall comply with applicable NEMA, NECA, and UL standards and governing regulations for materials and layout of temporary electric service.

2. The CONTRACTOR shall provide identification-warning signs of voltage differences at

power outlets that are other than 110-120 volt power and provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

3. The CONTRACTOR shall provide receptacle outlets equipped with ground-fault circuit interrupters (GFCI), with reset button and pilot light, for plug-in connection of power tools and equipment. No electrically powered tools or equipment shall be operated without a Ground-Fault Interrupter. The CONTRACTOR shall provide the ENGINEER with documentation proving that the GFCI's are in proper working order.

4. The CONTRACTOR shall use only grounded extension cords. Use "hard-service" cords where exposed to abrasion and traffic. Single lengths of electric cord shall be used or waterproof connectors shall be used to connect separate lengths of electric cords, if single lengths will not reach areas of work.

5. The CONTRACTOR shall provide general service incandescent lamps of wattage required for adequate illumination (in accordance with OSHA 29 CFR 1910.56, "Illumination"). Lamps shall be equipped with guard cages or tempered glass enclosures where fixtures are exposed to breakage by construction operations. Exterior fixtures shall be provided where fixtures are exposed to the weather or moisture.

PART 3 - PROJECT EXECUTION

3.01 GENERAL CONSIDERATIONS

A. Approvals and Inspection

All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet these contract specifications along with EPA, OSHA, NIOSH, regulations and recommendations as well as any other federal, state, and local regulations. Where there exists overlap of these regulations, the most stringent one applies. All work performed by the CONTRACTOR is further subject to approval of the ENGINEER. Modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated. Written modifications to these specifications must be provided to the ENGINEER for review and approval before they can be used for work on this project.

B. Shut Down and Lock Out Systems

Wherever possible, shut down and lock out electric power to all work areas. Provide temporary power and lighting according to these specifications. Coordinate with the Owner in advance prior to conducting shutdowns and lockouts. Whenever the work area cannot be completely de-energized, the CONTRACTOR will provide the Owner with a plan for protecting workers and electrical equipment. Shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are within, supply, or pass through the work area. This will be done with the advice

and counsel of the Owner, but the CONTRACTOR is responsible to ensure all systems are shut down and it is impossible to re-energize until clearance is obtained.

1. Investigate the work area and agree on pre-abatement condition with the Owner.

2. Seal all intake and exhaust vents in the work area with tape and 2 layers of 6-mil polyethylene.

3. Seal any seams in system components that pass through the work area.

4. Remove all HVAC system filters and place in labeled, 6-mil polyethylene bags for staging and eventual disposal as asbestos-contaminated waste.

C. Barriers and Isolation Areas

1. The CONTRACTOR shall construct and maintain suitable critical barriers at the exterior and if required within the building to separate work areas. Critical barriers shall be of sufficient size and strength to prevent unauthorized persons from entering the work areas.

2. Warning signs shall be posted on all critical barriers at the commencement of the work area preparation, as required in 1926.1101 of the Occupational Safety and Health Standards. The signs shall display the proper legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in OSHA Standard 1926.1101. The signs will read as follows:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATOR AND PROTECTIVE CLOTHING
REQUIRED IN THIS AREA

3. The signs shall be posted at the perimeters of asbestos removal, demolition or construction areas where the asbestos-containing material to be removed exists.

4. The CONTRACTOR shall maintain all temporary and critical barriers, facilities and controls as long as necessary for the safe and proper completion of the work. All containments shall consist of floors and walls covered with 2 layers of 6-mil poly sheeting, except in those instances where such floors are deemed impervious by the ENGINEER.

5. Any breaches in the containment will be corrected at the beginning of each shift and as necessary during the workday. Work will not be allowed to commence until all control systems are in place and operable.

6. No barriers shall be removed until the work areas are thoroughly cleaned and all debris has been properly bagged and removed from work areas, and the air has passed final clearance tests, in accordance with provisions detailed herein.

3.02 ACM LOCATION PREPARATION AND REMOVAL

A. Area Cleaning and Preparation

1. PRE-CLEANING: In areas designated under the Sequence of Work as having asbestos debris on surfaces, remedial cleaning will be required. Cleaning will be done using HEPA vacuums and wet methods. Pre-removal cleaning will be required in areas where visible asbestos debris is present on the floors and other surfaces as described in Section 1.0. Respiratory protection and protective clothing will be required as defined by OSHA regulation 1926.1101. All pre-cleaning will be inspected by the ENGINEER. During pre-cleaning activities, the work area shall have its primary and critical barriers in place and be under adequate negative pressure as described herein. Any changes to this shall be at the approval of the ENGINEER. It should be noted that pre-cleaning shall take place in all work areas prior to commencement of abatement. Pre-cleaning shall include wet wiping and HEPA vacuuming of the floor areas and non-movable items. In addition, all movable items deemed "contaminated" by the ENGINEER shall also be pre-cleaned.

2. PRIMARY BARRIERS: Prior to the construction of each asbestos abatement area, all primary barriers shall be sealed with a minimum of one layer of 6-mil plastic sheeting and duct tape on plywood. Primary barriers consist of all windows, vents, closed and locked doors, and openings to adjacent spaces from the work area.

B. Decontamination Unit and Procedures

1. It is the CONTRACTOR'S responsibility to ensure work areas shall be equipped with decontamination facilities consisting of a clean room, a shower room, and an equipment room. Each room shall be separated from the other and from the work area by airlocks such as will prevent the free passage of air or asbestos fibers and shall be accessible through doorways protected with two (2) overlapping 4 mil polyethylene sheets. The clean room (or change room) shall be equipped with suitable hooks, lockers, shelves, etc. for workers to store personal articles and clothing. The shower room shall be contiguous to the clean room and equipment room. All personnel entering or leaving the work area shall pass through the shower room. The number of showers provided shall satisfy the requirements of OSHA 29 CFR 1910.141 (d) (3) (ii). Warm water shall be supplied to the showers. The equipment room (dirty room) shall be situated between the shower room and the work area, and separated from both by means of suitable barriers or overlapping flaps such as will prevent the free passage of air or asbestos fibers.

2. (b) No person or equipment shall leave the asbestos abatement project work area unless first decontaminated by showering, wet washing or HEPA vacuuming to remove all asbestos debris. No asbestos contaminated materials or persons shall enter the clean room.

3. Where feasible, decontamination systems shall abut the work area. In situations where it is not possible, due to unusual conditions, to establish decontamination systems contiguous to the work area, personnel shall be directed to remove visible asbestos debris from their persons by HEPA-filtered vacuuming prior to donning clean disposable coveralls while still in the work area, and proceeding directly to a remote decontamination system to shower and change

clothes.

4. In specific situations where the asbestos contractor determines that it is not feasible to establish a contiguous decontamination system at a work site, the asbestos contractor shall provide written notification and provide a copy to the facility owner of intent to utilize a remote decontamination system. Such systems must be operated in conformance with 29 CFR 1926.1101(j). Such notice shall be made with the notification required under Section 19a-332a-3.

5. Each room shall be separated from other rooms by a double flap of 6-mil polyethylene sheeting acting as an airlock. This shall be designed to minimize fiber migration and airflow between the decontamination unit rooms. A separate equipment and waste decontamination unit shall also be constructed. This can be adjacent to the personnel shower room.

6. The rooms shall be framed with 2" X 4" lumber, masked, sealed and attached to the entry/exit ways of asbestos/lead work areas.

7. The rooms together shall be referred to as the Decontamination Unit. A Decontamination Unit will be required for each separate containment area, if work is to be divided into sections.

8. For those areas deemed acceptable for the utilization of glovebags, a remote Decontamination Unit can be used.

9. The Equipment Room shall serve as a transfer room for decontamination procedures to occur in. This room shall be vacuumed and washed whenever necessary in order to prevent asbestos dust and debris accumulations or when required by the ENGINEER. Workers leaving the containment shall remove and dispose of disposable protective suits in the Equipment Room and proceed into the Shower Room.

10. The Shower Room shall contain an appropriate number of shower heads supplied with hot and cold water adjustable at the tap. Uncontaminated soap, shampoo, and towels shall be available at all times. The shower water shall be drained, collected, and filtered through a system with at least 5.0-micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall either be discharged in accordance with the applicable local codes or otherwise disposed of as asbestos waste. Contaminated filters shall be disposed of as asbestos waste.

11. The Clean Room shall store abatement workers' clean protective clothing and clean respirator equipment. Contaminated clothing, respirators, tools, equipment, or other materials shall not be allowed into the Clean Room or beyond. The Clean Room will serve as an access for personnel entering the work area, and for the donning of respiratory protection and protective clothing. The CONTRACTOR shall provide space in the Clean Room for the workers' personal clothing. This shall be in the form of lockable lockers.

C. HEPA Filtration

Adequate negative pressure shall be provided within the enclosure as specified below.

1. After asbestos work area is totally isolated, and prior to commencement of work, the ENGINEER will perform a visual inspection of the work area. This will consist of checking the integrity of barriers including smoke testing the containment if deemed necessary by the ENGINEER. This does not in any way relieve the CONTRACTOR'S responsibilities to ensure the isolation of the work area. The volume of air within the contained work area shall be changed a minimum of four (4) times per hour. A pressure differential reading of -0.02 inches of water shall be maintained in the negative pressure work area relative to adjacent areas. A manometer with a strip chart recorder shall be used to show that the proper pressure differential is being maintained.

2. Equipment used for producing a negative pressure work area shall have a filtering device that is at least 99.97% efficient at a 0.3-micron pore size. Filters meeting these standards are referred to as High Efficiency Particulate Absolute (HEPA) filters. The HEPA filtration units shall be equipped with the following:

    a. Magnehelic gauge to monitor the unit's air pressure difference across the filters and be able to interpret magnehelic readings to cubic feet per minute (CPM).
    b. An affixed label, clearly marked and conspicuous, showing the most recent installation date and hour reading of the primary internal HEPA filter.
    c. A clock to record the unit's operation time.
    d. Automatic shut off for filter failure or absence.
    e. Audible alarm for unit shutdown.
    f. Amber flashing warning light for filter loading.
    g. The unit must be equipped with a safety system that prevents it from being operated with the HEPA filter in an improper orientation.
    h. All flexible ducting, vent tubing, adapter plates and other equipment used for the passage of filtered air shall be undamaged, uncontaminated, and free of air leaks at all points.

3. Pre-filters shall be changed frequently during the abatement.

4. All HEPA units shall exhaust to the outside of the building.

5. Air movement shall flow uninterrupted from outside the work area through the Decontamination Unit into the work area. There shall be no other openings for air to enter the containment unless approved by the ENGINEER in writing.

6. HEPA filtration units shall be placed as far as possible from the air intake to the containment to prevent short cycling of fresh air.

7. This containment, along with the decontamination chamber, shall constitute the critical containment of the work area from the surrounding areas. All openings to this critical containment are to be sealed except where air must enter the work site due to the use of exhaust equipment.

8. Unless approved by the ENGINEER, air shall enter the critical containment only through the Decontamination Unit. A pressure differential meter will be installed and maintained. If pressure differential drops below -0.02 inches of water, stop work until proper negative pressure is restored.

9. Written modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated.

10. Written modifications to these specifications must be made to the ENGINEER for review before they can be used for work on this project.

D. ACM Removal

1. Asbestos removal will not begin until the ENGINEER has given authorization to proceed. This authorization will be given after the removal area has passed a visual inspection by the ENGINEER based on the criteria presented herein. The ENGINEER reserves the right to inspect the work area prior to start of abatement. The ENGINEER also reserves the right to inspect the work area at any time and to order the CONTRACTOR to stop work.

2. All ACM shall be removed utilizing full containment and negative air filtration (as appropriate).

3. All ACMs shall be sufficiently saturated/wetted to reduce fiber release so that the airborne fiber concentration does not exceed the established OSHA Permissible Exposure Limits (PELs).

4. Dry removal will not be permitted at any time during this project.

5. All ACM shall be carefully removed and placed into double 6-mil polyethylene bags or fiber drums for disposal. All bags, containers or wrapped materials transported out of the work area shall be labeled with preprinted labels required by Federal EPA, OSHA and the Department of Transportation regulations. The name of the waste generator (Owner) and the project location address shall also be placed on each bag/drum.

6. Fine cleaning of residual asbestos-containing material shall consist of carefully scraping or brushing the material from surfaces. The recommended method for brushing a substrate after gross removal has taken place is to use a nylon brush. Wetting of the substrate shall also occur while this brushing is performed, since the chance of airborne fiber generation during fine cleaning still exists.

7. Clean-up activities shall include, but not be limited to, wet-wiping and vacuuming surfaces with a HEPA equipped vacuum. Work may continue only after the source of contamination is identified, corrected, and proper cleaning activities are implemented.

8. After brushing and scraping, surfaces shall be free of visible debris and fibers. A final wipe-

down of the substrate with wet, lint-free cloths shall take place in order to ensure proper cleaning. All surfaces including floors, walls, and ceilings shall also be HEPA vacuumed clean.

9. All visible ACM is to be removed by the CONTRACTOR before encapsulation procedures are allowed to begin. The ENGINEER will conduct an inspection of the work area prior to giving approval to begin encapsulation of the work area. The removal substrate must be clean and bare, and the entire work area must be free and clear of any suspect material for the CONTRACTOR to pass this visual inspection and begin encapsulation.

E. ACM Roof Removal

1. Exterior methods of asbestos abatement (An Exclusion Zone (barrier tap) with wet methods and drop cloths) for removal of the exterior ACM shall be utilized.

2. The Contractor shall be responsible for the removal of vegetation (i.e., small trees, brush, etc.) surrounding the building to allow for abatement/ demolition activities, as necessary, for the removal of roofing materials.

F. Encapsulation Procedures

1. The polyethylene barriers shall be cleaned of gross contamination before a lockdown sealant can be applied to the substrate.

2. After the substrate has been cleaned and all polyethylene barriers of the work area are cleaned of visible debris, the CONTRACTOR shall request a visual inspection of the work area by the Engineer.

3. Workers performing lockdown must wear disposable protective clothing and respirators suitable for asbestos. The encapsulation process shall not be treated any differently from the removal process in this respect.

4. All surfaces from which asbestos-containing materials have been removed shall be encapsulated. A minimum of one coat of lockdown encapsulant will be applied to both the substrate and the polyethylene sheeting serving as the containment barrier. If the lockdown material is being applied to irregular, grooved, or corrugated surfaces, it shall be administered from the opposing side, or at a right angle to the direction of the previous application.

5. The encapsulant shall be left to dry before the commencement of final air testing. After final clearance and inspection criteria have been met (See Section 4.1 regarding Final Clearances), the CONTRACTOR shall begin final take-down procedures.

G. Removal of Critical Barriers

1. No critical barrier shall be taken down until the final visual inspection and final clearance air tests are found to be below 0.010 fibers/cc by TEM or PCM (where applicable).

2. After a successful final visual inspection, encapsulation, and a successful final air test, the CONTRACTOR shall conduct the post abatement takedown.

3. All encapsulated polyethylene sheeting removed during takedown/used in the construction of the Decontamination Unit and Containment Area shall be bagged and disposed of as asbestos contaminated waste.

4. Areas exposed during this process shall be examined for traces of suspect material.

5. If any suspect material is found, it must be cleaned up by HEPA vacuuming and wet cleaning, and a coat of encapsulant shall be applied to the affected areas. Based on the amount of suspect material found, the Owner's Project Monitor and/or representative may request the use of misters in the surrounding area.

6. The CONTRACTOR will then implement the use of misters as a precautionary measure.

3.03 DISPOSAL OF ASBESTOS WASTE

A. All waste removal procedures shall be conducted in accordance with local, state and federal regulations.

B. The CONTRACTOR shall provide proof that disposal sites for all waste materials have current and valid permits to accept specific wastes at the time of the pre-construction meeting.

C. Receipts shall be obtained by the CONTRACTOR from the disposal/recycling site(s), and submitted to the Engineer upon request for final payment.

D. Warning labels having permanent, waterproof print and adhesive shall be affixed to all asbestos bags, trucks, drums (lids and sides), and other containers used to store and/or transport asbestos-containing material. Labels must be conspicuous and legible and contain the following warning:

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

E. The CONTRACTOR shall be responsible for all necessary precautions to prevent pollution by spilling during the performance of services and shall assume full responsibility for all CONTRACTOR-caused spills, which shall be cleaned up at the CONTRACTOR'S expense.

F. Temporary storage of asbestos waste on-site (inside) will be allowed in designated non-work areas only.

3.04 HOUSEKEEPING

A. Throughout the work period, the CONTRACTOR shall maintain the building and site in a standard of cleanliness as specified throughout these specifications.

1. Contaminated disposable clothing, respirator filters, and other debris shall be bagged and sealed at the end of each workday.

2. All asbestos generated by either removal or repair shall be bagged immediately and not be allowed to be left exposed at the end of each workday.

3. Respirators shall be thoroughly cleaned at the end of each workday and stored for the next day's use.

4. The CONTRACTOR shall retain all stored items in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection materials.

5. The CONTRACTOR shall not allow the accumulation of scrap, debris, waste material, and other items not required for completion of the work.

6. The CONTRACTOR shall provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the environment.

7. Daily, and more often if necessary, the CONTRACTOR shall inspect the work areas and adjoining spaces, and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

8. The CONTRACTOR shall maintain the site in a neat and orderly condition at all times.

3.05 QUALITY CONTROL

A. Many references to Owner may in fact be managed by the ENGINEER in lieu of the Owner, at the Owner's request, and the CONTRACTOR is required to regard the requests and interpretations of the ENGINEER as having full force unless expressly informed otherwise by the Owner.

B. Clearance Air Monitoring

1. NOTE: Encapsulation on all surfaces (horizontal & vertical) must be dry prior to final air sampling.

2. The air clearance acceptance criteria for this project is <0.010 fibers per cubic centimeter of air (f/cc) by Phase Contrast Microscopy (PCM) using the NIOSH 7400 Method for containments/asbestos abatement less than 1,500 SF/600 LF, otherwise, Transmission Electron Microscopy (TEM) air testing using the AHERA (40 CFR Part 763, Appendix A, Subpart E) Method will be utilized.

3. A sufficient number of samples to reliably characterize the workplace air quality will be taken. Air will be agitated by means of a small leaf blower prior to the test and kept agitated by means of a small electric fan. The results of all samples must comply with the regulations set forth in this specification. Failure to meet the specified criteria will require the CONTRACTOR to reclean the designated work site and then the ENGINEER to repeat the final air clearance testing. All repeat air testing shall be the CONTRACTOR'S financial responsibility.

Cleaning and testing will be repeated until the specified criteria are met.

3.06 PERSONAL PROTECTION

A. Respirators and Protective Clothing

1. Protective Clothing

a. Personal protection, in the form of disposable Tyvek suits, and NIOSH approved respirators, are required for mechanics, CONTRACTOR supervision, Owner, ENGINEER, and visitors at the work site during the set-up, removal, and cleaning operations.
b. The CONTRACTOR shall provide all this protective equipment for workers, Owner, ENGINEER, and authorized personnel to access this work site.
c. Each worker shall be supplied with a minimum of two complete disposable uniforms every day.
d. Removal workers shall not be limited to two uniforms, and the CONTRACTOR will be required to supply additional uniforms as is necessary. Under no circumstances will anyone entering the removal area be allowed to reuse a contaminated uniform.
e. Work clothes shall consist of disposable full body suits, head covers, gloves, footwear, and eye protection. Street clothes are forbidden in the work area at all times, even under protective suits.

2. Respiratory Protection

a. The CONTRACTOR shall supply workers and supervisory personnel with NIOSH approved protective respirators and HEPA filters.
b. Appropriate respirator selection shall be determined by the daily personal samples being taken and strictly follow the guidelines set forth in the OSHA respiratory program 29 CFR 1910.134 and the Connecticut CTDPH Regulations 453 CMR 6.00. The respirators shall be sanitized and maintained according to the manufacturer's specifications. Appropriate respirators shall be selected using the information provided in OSHA Title 29 CFR Part 1910.1926 Final Rules. This determination has been made for this project. The CONTRACTOR shall utilize full-face PAPR respirators equipped with HEPA filters for all work. Disposable respirators shall not be considered acceptable in any circumstance.
c. The CONTRACTOR will maintain on site a sufficient supply of disposable HEPA filters to allow workers and supervisory personnel to change contaminated filters at least three (3) times daily. The CONTRACTOR is solely responsible for means and methods used and for compliance with applicable regulations.
d. Respirators shall be individually assigned to removal workers for their exclusive use.
e. All respiratory protection shall be provided to workers in accordance with the written submitted respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b) (1-11). A copy of this program shall be kept at the work site, and shall be posted in the Clean Room of the Decontamination Unit.
f. Workers must perform negative and positive pressure fit tests each a time a respirator is put on, whenever the respirator design permits.

g. Workers shall be given a qualitative fit test in accordance with procedures detailed in the OSHA 29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocols, for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

h. Upon leaving the active work area, the pre-filter shall be discarded, cartridges removed, and respirators cleaned in disinfectant solution and clean water rinse. Clean respirators shall be stored in plastic bags when not in use. The CONTRACTOR shall inspect respirators daily for broken, missing, or damaged parts.

3. Personal Sampling

a. The CONTRACTOR shall provide daily personal sampling to check personal asbestos exposure levels for the purpose of establishing respiratory protection needs.

b. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less.

c. Personal samples need not be taken every day after the first day if working conditions remain consistent, but must be taken every time there is a change in the removal operation, either in terms of the location or the type of work, or during any changes in personnel. Sampling will be to determine eight-hour Time Weighted Averages (TWA). The CONTRACTOR is responsible for personal sampling as outlined in OSHA Standard 1926.1101.

d. Sampling personnel shall be proficient in the taking of asbestos air samples as prescribed by NIOSH 7400, and must be supervised by an individual who has completed the NIOSH 582, or equivalent, training course.

e. Asbestos air sampling results shall be available for posting at the job site in written form no more than twenty-four (24) hours after the completion of a sampling cycle. The document shall list each sample's result, sampling time and date, individual monitored, flow rate, sampling duration, microscope field area, number of fibers per fields counted, cassette size, and analyst's name and company. Air sample analysis results will be reported in fibers per cubic centimeter.

END OF SECTION 02 08 00

SECTION 02 08 00 - ASBESTOS ABATEMENT (187-189 Derby Avenue)

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all sections within DIVISION 1 – GENERAL REQUIREMENTS that are hereby made a part of this Section. Note also all Addenda.

1.02 RELATED REQUIREMENTS

A. Examine all Attachment and/or Documentation for 187-189 Derby Avenue, and all other Sections of the Specifications for requirements affecting the Work of this Section whether or not such Work is specifically mentioned in this Section.

B. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under the Contract.

C. The following items are closely related to this Work but not included in this Section, and will be performed under the designated Sections.

1. Section 020800 – Hazardous Materials Abatement;
2. Section 013520 – Asbestos and Hazardous Materials Notice;
3. Section 011000 – Summary of the Work;
4. Section 013113 – Project Schedule;
5. Section 013119 – Project Meetings;
6. Section 013300 – Submittals;
7. Section 014100 – Regulatory Requirements;
8. Section 015000 – Construction Facilities Temporary Controls;
9. Section 024116 – Structure Demolition;
10. Section 310101 – Site Restoration;
11. Section 312515 – Erosion and Sediment Control; and,
12. Section 340113 – Operation and Maintenance of Roadways.

1.03 DESCRIPTION OF WORK

A. PROJECT DESCRIPTION

The Asbestos Abatement Contractor (CONTRACTOR) shall furnish all labor, materials, equipment, and services for the removal and disposal of all specified asbestos-containing materials (ACM), asbestos contaminated materials, and asbestos contaminated demolition debris, throughout the Site building located at 187-189 Derby Avenue in Derby, Connecticut (CT).

1. The project involves the full containment removal of all specified interior ACMs including,

and on wood substrates, and asbestos-contaminated surfaces/materials located throughout the Project Areas.

More specifically, the following ACM/ACM-contaminated materials to be removed and disposed of as part of the scope of work:

Material Description	Location and Estimated Quantity[1]	Asbestos Analytical Result
Duct Wrap[2]	RM 052 & 1st Floor Dining Room – Minimum 10 LF[2] (35 SF)	50%
Stick on Floor Tile[2]	RM 32, 37, 21 – 250 SF[2]	5%
Roof Caulking[2]	Roof[2] (not viewed by SLR)	8%
Black Mastic	Vent Pipe – 3 SF	12.1%
Gray and Black Mastic	Chimney – 20 SF	20.9%
Brown Adhesive	2nd Floor Front Bedroom Ceiling & Adjacent Hall – 200 SF	6.7%

NOTE: SF = Square Feet

[1]Estimated quantities are based on a cursory field evaluation and actual quantities may vary significantly, especially due to ACMs being present in hidden areas not evaluated as part of this survey, covered by loose items, and/or inaccessible areas discovered during this survey (such as below-grade/below concrete floor slabs and exterior foundation wall mastics, if applicable).

[2]AMC Environmental, LLC (Report Dated October 19, 2020) results

[3]Material has cross-contaminated surrounding areas/finish and substrate building materials

In addition to the above, the brown adhesive (0.25%) associated with 2nd floor wall panels and associated wood substate (if contaminated) are less than 1% asbestos (<1%) and must be appropriately disposed of as asbestos.

2. The CONTRACTOR is responsible for removing non-contaminated movable objects and equipment within the project areas prior to abatement activities. Fixed items within project areas shall be wet wiped/decontaminated while under full containment.

3. CONTRACTORS are required to verify the quantities of materials prior to the bid deadline, including the dimensions and locations of areas requiring abatement as well as the types of materials to be abated. If further investigation time is required for the quantity verification, arrangements shall be made as needed. This estimation shall be performed prior to the submission of the bid. Bidders shall inform the ENGINEER (SLR International Corporation) of any discrepancies between the quantities and types of materials specified herein and those verified to be present by the Bidder. If appropriate, an adjustment shall be made as to the types and/or quantities to be included in the Bid. If no discrepancies with the types and/or quantities of materials to be abated are brought to the attention of the ENGINEER prior to the Bid due date, it will be understood that the Bidders are in agreement with the types and quantities of materials specified herein, and no change orders will be allowed for these materials if quantity discrepancies are identified after bids are received.

4. The CONTRACTOR shall include in the base bid all costs for Pre-cleaning and disposal of all debris present and cleanup of contaminated items shall also be conducted in each work area.

5. In the event that additional (currently obscured) types and/or quantities of materials are to be removed, the CONTRACTOR shall refer to the Unit Pricing Section for applicable unit pricing to be used in the work of this project. Unit prices shall be submitted per shift rates (8-hour) per supervisor and per each worker shown within the City of Derby's bid form respective of each building. For a material to be verified as an extra, the CONTRACTOR shall notify the ENGINEER of the conditions believed to warrant a claim prior to the disturbance of the material. The ENGINEER shall field verify the CONTRACTOR'S claim, and if deemed an extra, the contract price shall be adjusted by the unit price or through negotiation. No claims for any increase in the contract price shall be considered if the material has been removed by the CONTRACTOR without prior authorization by the ENGINEER.

6. The CONTRACTOR is responsible for conducting all OSHA related safety and structural investigations for general and roofing conditions within the building that could pose a hazard to their workers. The CONTRACTOR shall include in their base bid all costs for performing these investigations and corrective measures required to abate any unsafe conditions and protect workers during abatement activities.

B. GENERAL SCOPE OF WORK

The following is the General Scope of Work at a minimum, required to be performed by the CONTRACTOR for asbestos abatement work. The CONTRACTOR shall adhere to the Scope of Work outlined below and any additional requirements stated herein.

1. Work area preparation, including pre-cleaning, installation of critical barriers and polyethylene sheeting, construction of decontamination facilities, work area enclosures, sealing, isolation, and other activities as directed by the ENGINEER.

2. Installation and operation of HEPA filtration units sufficient to achieve a minimum of four to six air changes per hour in each containment. The exact locations of HEPA filtration units, decontamination units, and other stationary equipment shall be coordinated with the ENGINEER.

3. Removal and disposal of all specified ACMs, asbestos contaminated materials and non-ACMs as specified herein. Dispose of all specified materials and debris as asbestos waste in accordance with Connecticut regulations.

4. Pre-cleaning of all asbestos-containing debris, as necessary, in all work areas prior to abatement.

5. Encapsulation of all abated surfaces in each work area.

6. Furnishing of all labor, materials, equipment, and services required for all work included in this specification.

7. Compliance with all applicable federal, state, and local regulations as well as all requirements set forth in these specifications.

8. Decontamination, teardown and clean up following abatement activities.

9. Performance of any other work or activities required by this specification, applicable regulations, or as necessary to perform a complete job to the satisfaction of the ENGINEER.

10. The ENGINEER reserves the right to collect samples of any suspect ACM to verify that the asbestos has been satisfactorily removed by the CONTRACTOR in accordance with the Specifications.

C. SPECIFIC SCOPE OF WORK

The following Work shall be conducted for this project. Examine all documents pertaining to asbestos for full extent and locations of Work to be conducted.

1. General Building Areas

   a. The CONTRACTOR is responsible for the installation of temporary lighting in all work areas (as applicable) and shall include all costs to provide a licensed electrician to assess the facility electrical conditions for making all necessary hookups to existing power for the abatement work (if unavailable by Owner).

   b. Remove and dispose of ACM from all specified equipment, piping, floors, walls, ceilings, and other components. Coordinate this work with other contractors at the site and the ENGINEER. Coordinate all system shutdowns with the Owner in advance.

2. (Project Areas)

   All of the above-described work shall be conducted within full containment with negative pressure and three-stage decontamination unit(s), unless otherwise noted (*i.e.,* roof removal, which may require a remote decontamination unit).

3. Refer to Division 1 for the scope of work required by unit prices and the pricing of same. Unit prices shall be part of the base bid and shall be utilized for ACM's not addressed in the Contract Documents.

1.04 SEQUENCE OF WORK

The following provisions shall apply for asbestos abatement work as identified by this section. The CONTRACTOR shall apply these provisions to all work areas throughout the building.

A. The CONTRACTOR shall decontaminate, remove, and properly dispose of all specified ACM.

B. Prior to the commencement of the work, all stored items and general items in each area, as well as all movable furnishings and other miscellaneous items in all work areas deemed to be non-contaminated, except as noted herein, shall be removed from each work area and disposed as construction debris. All non-contaminated non-movable items in all work areas, including but not limited to electrical panels, equipment, shelving, etc. shall be covered with two (2) layers of 6-mil polyethylene sheeting and sealed with duct tape.

C. All critical barriers shall be sealed with plywood and two (2) layers of six-mil polyethylene sheeting and negative pressure established.

D. The CONTRACTOR shall pre-clean all floor areas, floor drains and non-movable items of any asbestos debris present. Pre-cleaning shall include the use of wet misting, wet wiping and/or HEPA vacuuming of all affected surfaces (as applicable).

E. All work shall take place under full containment, and all workers shall utilize appropriate protective coveralls (*i.e.,* Tyvek Disposable Suit) and, at a minimum, a half-face negative pressure respirator equipped with HEPA cartridges.

F. All work shall be performed in accordance with all federal, state, and local regulations governing asbestos abatement. The CONTRACTOR shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling and disposal of asbestos waste, and protection of workers, visitors to the work site, and persons occupying areas adjacent to the work site.

G. The scheduling and sequencing of the Work of this Contract shall be proposed by the CONTRACTOR for approval by the ENGINEER. Multiple and distinct phases needing separate notifications may be required.

1.05 WORK INCLUDED

The total scope of work shall not be based solely on the information provided in this specification. The CONTRACTOR is required to perform quantity take-offs and measurements of the amount of material to be removed and decontaminated using all Documentation, and based on a site visit. Work shall be based on the CONTRACTOR'S own quantity take-offs of the work required by examination of the documentation and Site conditions.

1.06 SPECIAL CONSIDERATIONS

The Owner will pay for the first set of final clearance air sampling and analyses for each work area. In the event that these analyses do not pass the clearance criteria, all subsequent air sampling and analyses for the affected work areas that need to be rerun will be paid for by the CONTRACTOR. Phase Contrast Microscopy (PCM) shall be utilized for clearance of all areas less than or equal to 1,500 square feet or 500 linear feet of ACM; otherwise, Transmission Electron Microscopy (TEM) clearance air testing will be analyzed by the TEM method in Appendix A of 40 CFR Part 763 subpart E. All additional monitoring and sampling costs will be automatically deducted from the

CONTRACTOR'S contract price until the area in question passes the clearance criteria established in this section.

1.07 SUBMITTALS

A. Before preparations are allowed to begin, the CONTRACTOR shall submit the following to the ENGINEER for approval:

1. Copies of all notifications, permits, applications, licenses, and like documents required by federal, state, or local regulations obtained or submitted in proper fashion,

2. CONTRACTOR'S written site-specific Health and Safety Plan that includes Hazardous Communication, Respiratory Protection, Lockout/Tagout and Confined Space Entry Programs with site-specific written plans.

3. Copies of CONTRACTOR'S CTDPH licenses for asbestos,

4. A sketch of the proposed containment(s) that includes all entrances, HEPA exhausts, and critical barriers,

5. A proposed timetable for the complete job that shows the preparation, removal and disposal, clean up, testing, and teardown portions of the job for each work area. A critical path showing completion dates for each area shall be included,

6. Proof of the abatement supervisor's certification and training, including the most recent refresher course completed and current CTDPH licenses for asbestos,

7. Proof of each asbestos abatement worker's certification and training, including the most recent refresher courses completed and current CTDPH licenses for asbestos,

8. Written site-specific Respiratory Protection Program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used on this specific job,

9. Proof that the abatement supervisor and workers have been examined by a qualified physician within the past 12 months, and are capable of wearing respiratory protection and are able to perform asbestos abatement work and other related activities,

10. Proof that the asbestos abatement supervisor and workers have been fit-tested within the past twelve months for using a negative-pressure respirator equipped with HEPA filter cartridges.

11. Proposed electrical safeguards to be implemented, including but not limited to location of transformers, 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,

12. A list of all equipment to be used on site, by make and model, including ventilation equipment, HEPA vacuums, etc.,

13. Chain of Command of responsibility at work site including supervisors, foreman, and competent person, their names, and resumes,

14. Proposed Emergency Plan and route of egress from work areas in case of fire or injury, including the name, directions/map and phone number of nearest medical assistance center,

15. The name and address of the CONTRACTOR'S personal air monitoring and testing laboratory including certification of Connecticut accreditation and proof of NIOSH proficiency in the asbestos Proficiency Analytical Testing (P.A.T.) Program,

16. An SDS or equivalent, in accordance with the OSHA Hazard Communication Standard (29CFR 1910.1200) for all products and materials proposed for use on the project. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated. A copy of the CONTRACTOR'S complete OSHA Hazard Communication Standard will also be submitted and be kept on site at all times describing the CONTRACTOR'S Asbestos and Hazardous Materials HazCom Program,

17. A current negative exposure assessment in accordance with OSHA 1926.1101 providing recent data (less than six months old) indicating personal exposures to airborne asbestos during Class I operations for comparable workers. This data must show that workers' exposures to airborne asbestos on an eight-hour time weighted average (TWA) basis are less than 0.1 fibers per cubic centimeter of air (f/cc),

18. Any other documentation that applies and is called for by this or other sections of the specifications.

19. No work on the project will be allowed to begin until the ENGINEER, as listed herein, approves the Pre-Job Submittals. Any delay caused by the CONTRACTOR'S refusal to submit this documentation in a timely manner does not constitute a cause for change order or a time extension.

20. CONTRACTOR shall specify and submit qualification information as described herein for an on-site Supervisor who is fully qualified in all aspects of hazardous materials abatement practices and procedures, and have, in addition to the training specified elsewhere in these specifications. above, a minimum of one year experience working with hazardous materials of this nature, 8 hours training in managing hazardous waste operations, and current certification in first aid and cardiopulmonary resuscitation (CPR) by a recognized approved organization. Submit list of comparable projects that involve this type of work.

21. Copies of appropriate medical monitoring results as required by 29 CFR 1910.120 or a notarized statement by the examining medical doctor that such examinations took place according to 29 CFR 1910.120 and when, for each employee to be used on project.

22. Name, address, and ID number of the hazardous waste hauler(s), waste transfer route(s), and proposed disposal (incineration/recycling) site(s).

B. Upon completion of the asbestos and hazardous materials abatement work, the CONTRACTOR shall submit the following to the OWNER and/or ENGINEER:

1. All manifests and landfill receipts detailing disposal of all asbestos and asbestos-containing waste materials generated by the work.

2. All analytical results of personal asbestos air samples collected in accordance with OSHA regulations to verify that the 8-hour time weighted average (TWA) concentrations of asbestos fibers in the breathing zone of the workers has not exceeded the permissible exposure limit (PEL) of 0.1 f/cc.

3. A notarized copy of the entry-exit logbook.

4. Copies of manifests, bills of lading and receipts acknowledging disposal of all hazardous waste materials, drums, tanks and transformers from the project, showing delivery date, quantity, and appropriate signature of recycling/incineration site's authorized representative.

1.08 TRAINING AND QUALIFICATIONS

A. Worker Training

All personnel who work on this project shall be provided, at a minimum. the following training:

1. The health hazards of asbestos including the nature of asbestos related diseases, routes of exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods, and health basis for standards.

2. Personal protective equipment (PPE) including the types and characteristics of respirator classes, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage of respirators, field testing the face piece to face seal (positive and negative pressure fit tests), qualitative and quantitative fit testing procedures, variations between laboratory and field fit factors, factors that affect respirator fit, selection and use of disposable clothing, use and handling of washable clothing, non-skid shoes, gloves, eye protection, and hard hats.

3. Medical monitoring requirements for workers including required and recommended tests, reasons for medical monitoring and employee access to records.

4. Air monitoring procedures and requirements for workers including description of equipment and procedures, reasons for monitoring, types of samples and current standards with recommended changes.

5. Work practices for asbestos and hazardous materials abatement including purpose, proper construction and maintenance of airtight plastic barriers, job set-up of airlocks, posting of warning signs, engineering controls, electrical and ventilation system lockout, proper working techniques, waste cleanup, storage and disposal.

6. Personal hygiene including entry and exit procedures for the work area, use of showers and

prohibition of eating, drinking, smoking, and chewing in the work area.

7. Special safety hazards that may be encountered including electrical hazards, air contaminants (CO, wetting agents, encapsulants), fire and explosion hazards, scaffold and ladder hazards, slippery surfaces, confined spaces, heat stress, and noise.

8. Workshops allowing both supervisory personnel and abatement workers the opportunity to observe and experience the construction of containment barriers and decontamination facilities.

9. Lockout/Tagout and Confined Space Entry procedures.

B. Site Supervisor Qualifications

1. The CONTRACTOR shall provide one Site Supervisor, whose responsibilities include coordination, safety, security, and execution of all phases of the asbestos and hazardous materials abatement project. The Site Supervisor will not be used as an abatement worker, and will be assigned full-time to the project.

2. The Site Supervisor shall be fully qualified in all aspects of asbestos and hazardous materials abatement practices and procedures, and have a one-week asbestos training course within the previous year prior to the commencement of asbestos related work. The asbestos training course will cover all topics listed above as well as training in contract specifications, liability insurance and bonding, legal considerations related to abatement, establishing respiratory protection medical surveillance programs, and EPA and OSHA record-keeping programs.

3. At least one licensed asbestos supervisor should be on site at all times who is certified in CPR and Emergency First Aid by an appropriate authority, as well as having received the required training under the OSHA Bloodborne Pathogen Standard.

4. The Site Supervisor shall be fully qualified and experienced in all aspects of hazardous waste operations to be conducted as part of this work and shall have an additional 8 hours of training in managing Hazardous Waste Operations.

1.09 REGULATORY SUBMITTALS

A. The CONTRACTOR shall notify the following agencies in appropriate manner and place of impending work, and shall provide evidence of notifications at the pre-construction meeting:

1. U.S. EPA, Region 1
J.F. Kennedy Federal Building
Boston, MA 02203
(10 business days in advance)

2. STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
ASBESTOS PROGRAM

410 Capitol Avenue- MS # 51 AIR
PO BOX 340308
Hartford, CT 06134
(10 business days in advance)

3. Connecticut Department of Energy and Environmental Protection (CTDEEP)
Compliance Analysis & Coordination Unit
Bureau of Air Management
79 Elm Street
Hartford, CT 06106-5127

4. Local Fire and Police Departments, Building Department, and other state or city agencies as required by law or ordinance.

B. Permits

The CONTRACTOR shall be responsible for securing and paying for all necessary permits for asbestos and hazardous materials related work, including hauling, removal and disposal, building, fire, tank permits, and materials usage, Police and Fire details, or any other permits required to perform the specified work.

C. Fees, Licenses, Patents, and Copyrights

1. The CONTRACTOR shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or process in the performance of the job specified herein. The CONTRACTOR shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights.

2. The CONTRACTOR shall hold the Owner and the ENGINEER harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights.

3. If the Contract Specification requests the use of any product, design, invention, or process that requires a licensing fee or royalty fee for use in the performance of the job, the CONTRACTOR shall be responsible for the fee or royalty fee and shall disclose the existence of such rights.

4. The CONTRACTOR shall be responsible for costs of all licensing requirements, where applicable, and notification requirements and all other fees related to the CONTRACTOR'S ability to perform the work in this section.

1.10 SAFETY CONSIDERATIONS

A. This project is subject to compliance with Public Law 91-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all Rules and Regulations pertaining to construction, including Volume 36, Numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S. Department of Labor.

B. In addition to any detailed requirements of the Specification, the Abatement Contractor shall at his own cost and expense comply with all laws, ordinances, rules and regulations of Federal, State, Regional and Local Authorities regarding handling and storage of asbestos, lead and other hazardous waste materials.

C. All staging and scaffolding (if needed) shall be furnished and erected by the CONTRACTOR in accordance with all applicable requirements, and be maintained in safe condition by him at no additional cost to the Owner.

D. The CONTRACTOR is responsible for using safe procedures to avoid electrical hazards. When a hazard exists, work will be stopped and power will be shut off and checked before work begins again. All electrical panels and exposed wires within the work site shall be de-energized prior to the commencement of any wetting or removal operations. All extension cords and power tools used within the work area shall be attached to Ground Fault Circuit Interrupters (G.F.C.I.) in accordance with 1910.120 and the CONTRACTOR'S Lockout/Tagout and Confined Space Entry programs.

1.11 SECURITY

A. The Owner will provide specific access as required during the project to the CONTRACTOR and personnel assigned to the project. The access shall be determined by the Owner. The CONTRACTOR will be responsible for the security of the building involved in the abatement project. The CONTRACTOR shall maintain security in the building using appropriate secure barriers and locks. It will also be the CONTRACTOR'S responsibility to allow only authorized personnel into each work area, and to secure all assigned entrances and exits at the end of the workday. Authorized personnel include licensed CONTRACTOR staff, the Owner, ENGINEER, and all other personnel with the appropriate training, medical approval, respirator fit testing, and personal protective equipment. The CONTRACTOR shall cover each window, door, grate, or other opening made by abating these components with secured plywood coverings to prevent unauthorized access into the building.

B. Any person entering or leaving the contained areas must sign the CONTRACTOR'S bound logbook and enter the date and time. The logbook must be located immediately outside the entrance to the Decontamination Unit at all times, and be open for inspection by the ENGINEER.

1.12 REFERENCES

The following references are cited as applicable publications:

A. Environmental Protection Agency
Asbestos Regulations (NESHAPS) Title 40 CFR Part 61, as currently amended. Guidance for Controlling Friable Asbestos Containing Materials in Buildings, Final Rule and Notice. Asbestos Hazard Emergency Response Act (AHERA) Title 40 CFR Part 763.

B. Occupational Safety and Health Administration
Title 29 CFR 1910.1001 (amended)
Title 29 CFR 1926.1101 (amended)
Title 29 CFR 1926.62 (amended)

C. Connecticut Department of Health (DPH)
Title 19a-CHAPTER 368l CARCINOGENIC SUBSTANCES Section 19a-332 through 19a-333
Title 20-CHAPTER 400a Asbestos Contractors and Asbestos Consultants- Section 20-435 through 20-441
Title 19a-Health and Well-being; Subtitle 19a-332a
Title 20-Professional and Occupational Licensing, Certification

D. Connecticut Department of Energy and Environmental Protection (CTDEEP)

E. U.S. Department of Transportation Regulations (49 CFR Parts 172 and 173)

F. Toxic Substances and Control Act (TSCA) (40 CFR 761).

G. Hazard Communication Standard (29 CFR 1926.59).

H. Hazardous Waste Operations and Emergency Response (29 CFR 1910.120).

I. National Contingency Plan (CERCLA, Section 105).

J. Spill Prevention Control and Countermeasures Plan (40 CFR, Part 112).

K. All regulations by these and other governing agencies in their most recent version are applicable. These specifications refer to many requirements found in these references, but in no way intend to cite or reiterate all provisions therein or elsewhere. It is the CONTRACTOR'S responsibility to know, understand, and abide by all such regulations and common practices.

L. Other provisions contained in these references may, from time to time during the execution of this contract, be enforced by the ENGINEER at their own discretion.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The CONTRACTOR shall provide new materials and new or used equipment in undamaged and serviceable condition. Only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards, are to be used during the project.

A. Fire Extinguishers

The CONTRACTOR shall provide multi-purpose ABC minimum rating to A40BC fire extinguishers. The CONTRACTOR shall comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers." Fire extinguishers shall be located where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher inside each work area in the Equipment Room and one outside each work area in the Clean Room.

B. Construction Lumber

Construction lumber for critical barrier walls shall consist of nominal, fire-retardant, 2" x 4" framing, sixteen inches center to center.

C. Plastic Sheeting

The CONTRACTOR shall provide non-combustible, fire-retardant, 6-mil thick clear, frosted, or black plastic sheeting in the largest size possible to minimize seams. Spray plastic will not be allowed for use on this project.

D. Adhesive Materials

The CONTRACTOR shall provide duct tape in 2" or 3" widths, with an adhesive that is formulated to aggressively stick to plastic sheeting. The CONTRACTOR may also provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to plastic sheeting.

E. Shower Assembly

1. The CONTRACTOR shall provide a leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3' x 3' square with minimum 6' high sides and back. The CONTRACTOR shall structurally support the unit as necessary for stability and equip it with a hose bib, mounted at approximately 4'-0" above drain pan.

2. The CONTRACTOR shall provide a factory-made showerhead producing a spray of water that can be adjusted for spray size and intensity. The CONTRACTOR shall feed shower with water mixed from hot and cold supply lines, arranged so that control of water temperature, flow rate, and shutoff is from inside shower without outside aid.

3. The CONTRACTOR shall provide a totally submersible waterproof sump pump with an integral float switch. The unit shall be sized to pump two times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. The unit shall be capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. The CONTRACTOR shall adjust float switch so that a minimum of 3" remains between top of liquid and top of sump pan.

F. Negative Air Filtration System

The CONTRACTOR shall provide air-filtering equipment capable of filtering particles to 0.3 micrometers at 99.97% efficiency and of sufficient quantity and capacity to cause a complete air change within the work area at least once every 15 minutes. Such equipment shall exhaust the filtered air so as to maintain a negative pressure inside the work area. Air shall flow in through the Decontamination Unit and exhaust through the negative air filtration unit by means of flexible duct

leading outside the work area, preferably outside of the building. Negative air filtration shall be in operation at all times.

G. HEPA Vacuum

The CONTRACTOR shall utilize high efficiency filter vacuums to filter particles of 0.3 micrometers or larger at 99.97% efficiency or greater. The CONTRACTOR shall obtain HEPA vacuum attachments, such as various size brushes, crevice tools, and angular tools to be used for varied application, and service the HEPA vacuum routinely to assure proper operation. Caution shall be used any time the vacuum is opened for HEPA filter replacement or debris removal. Operators shall wear protective clothing and respirators when using the HEPA vacuum. Vacuuming by conventional means is unacceptable.

H. Amended Water

For wetting prior to disturbance of asbestos-containing materials, the CONTRACTOR shall use an amended water solution. The CONTRACTOR shall provide water to which a commercial surfactant (i.e., not dish detergent) has been added. The CONTRACTOR shall use a mixture of surfactant and water, which results in wetting of the asbestos-containing material and retardation of fiber release during disturbance of the material, equal to or greater than that provided by the use of one ounce of a surfactant, consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

I. Disposal Bags

The CONTRACTOR shall provide appropriately labeled 6-mil thick leak tight plastic bags of sufficient size for application.

J. Water Service

All temporary water connections to the Owner's water source shall include back-flow protection. The CONTRACTOR shall provide heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into the work area and to the Decontamination Unit. The CONTRACTOR shall provide a UL rated 40-gallon electric hot water heater to supply hot water for each Decontamination Unit shower.

K. Electrical Service

1. The CONTRACTOR shall provide temporary power service to the Decontamination Unit sub panel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the auxiliary power source. The sub panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. The CONTRACTOR shall comply with applicable NEMA, NECA, and UL standards and governing regulations for materials and layout of temporary electric service.

2. The CONTRACTOR shall provide identification-warning signs of voltage differences at power outlets that are other than 110-120 volt power and provide polarized outlets for plug-in

type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

3. The CONTRACTOR shall provide receptacle outlets equipped with ground-fault circuit interrupters (GFCI), with reset button and pilot light, for plug-in connection of power tools and equipment. No electrically powered tools or equipment shall be operated without a Ground-Fault Interrupter. The CONTRACTOR shall provide the ENGINEER with documentation proving that the GFCI's are in proper working order.

4. The CONTRACTOR shall use only grounded extension cords. Use "hard-service" cords where exposed to abrasion and traffic. Single lengths of electric cord shall be used or waterproof connectors shall be used to connect separate lengths of electric cords, if single lengths will not reach areas of work.

5. The CONTRACTOR shall provide general service incandescent lamps of wattage required for adequate illumination (in accordance with OSHA 29 CFR 1910.56, "Illumination"). Lamps shall be equipped with guard cages or tempered glass enclosures where fixtures are exposed to breakage by construction operations. Exterior fixtures shall be provided where fixtures are exposed to the weather or moisture.

PART 3 - PROJECT EXECUTION

3.01 GENERAL CONSIDERATIONS

A. Approvals and Inspection

All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet these contract specifications along with EPA, OSHA, NIOSH, regulations and recommendations as well as any other federal, state, and local regulations. Where there exists overlap of these regulations, the most stringent one applies. All work performed by the CONTRACTOR is further subject to approval of the ENGINEER. Modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated. Written modifications to these specifications must be provided to the ENGINEER for review and approval before they can be used for work on this project.

B. Shut Down and Lock Out Systems

Wherever possible, shut down and lock out electric power to all work areas. Provide temporary power and lighting according to these specifications. Coordinate with the Owner in advance prior to conducting shutdowns and lockouts. Whenever the work area cannot be completely de-energized, the CONTRACTOR will provide the Owner with a plan for protecting workers and electrical equipment. Shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are within, supply, or pass through the work area. This will be done with the advice

and counsel of the Owner, but the CONTRACTOR is responsible to ensure all systems are shut down and it is impossible to re-energize until clearance is obtained.

1. Investigate the work area and agree on pre-abatement condition with the Owner.

2. Seal all intake and exhaust vents in the work area with tape and 2 layers of 6-mil polyethylene.

3. Seal any seams in system components that pass through the work area.

4. Remove all HVAC system filters and place in labeled, 6-mil polyethylene bags for staging and eventual disposal as asbestos-contaminated waste.

C. Barriers and Isolation Areas

1. The CONTRACTOR shall construct and maintain suitable critical barriers at the exterior and if required within the building to separate work areas. Critical barriers shall be of sufficient size and strength to prevent unauthorized persons from entering the work areas.

2. Warning signs shall be posted on all critical barriers at the commencement of the work area preparation, as required in 1926.1101 of the Occupational Safety and Health Standards. The signs shall display the proper legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in OSHA Standard 1926.1101. The signs will read as follows:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATOR AND PROTECTIVE CLOTHING
REQUIRED IN THIS AREA

3. The signs shall be posted at the perimeters of asbestos removal, demolition or construction areas where the asbestos-containing material to be removed exists.

4. The CONTRACTOR shall maintain all temporary and critical barriers, facilities and controls as long as necessary for the safe and proper completion of the work. All containments shall consist of floors and walls covered with 2 layers of 6-mil poly sheeting, except in those instances where such floors are deemed impervious by the ENGINEER.

5. Any breaches in the containment will be corrected at the beginning of each shift and as necessary during the workday. Work will not be allowed to commence until all control systems are in place and operable.

6. No barriers shall be removed until the work areas are thoroughly cleaned and all debris has been properly bagged and removed from work areas, and the air has passed final clearance tests, in accordance with provisions detailed herein.

3.02 ACM LOCATION PREPARATION AND REMOVAL

A. Area Cleaning and Preparation

1. PRE-CLEANING: In areas designated under the Sequence of Work as having asbestos debris on surfaces, remedial cleaning will be required. Cleaning will be done using HEPA vacuums and wet methods. Pre-removal cleaning will be required in areas where visible asbestos debris is present on the floors and other surfaces as described in Section 1.0. Respiratory protection and protective clothing will be required as defined by OSHA regulation 1926.1101. All pre-cleaning will be inspected by the ENGINEER. During pre-cleaning activities, the work area shall have its primary and critical barriers in place and be under adequate negative pressure as described herein. Any changes to this shall be at the approval of the ENGINEER. It should be noted that pre-cleaning shall take place in all work areas prior to commencement of abatement. Pre-cleaning shall include wet wiping and HEPA vacuuming of the floor areas and non-movable items. In addition, all movable items deemed "contaminated" by the ENGINEER shall also be pre-cleaned.

2. PRIMARY BARRIERS: Prior to the construction of each asbestos abatement area, all primary barriers shall be sealed with a minimum of one layer of 6-mil plastic sheeting and duct tape on plywood. Primary barriers consist of all windows, vents, closed and locked doors, and openings to adjacent spaces from the work area.

B. Decontamination Unit and Procedures

1. It is the CONTRACTOR'S responsibility to ensure work areas shall be equipped with decontamination facilities consisting of a clean room, a shower room, and an equipment room. Each room shall be separated from the other and from the work area by airlocks such as will prevent the free passage of air or asbestos fibers and shall be accessible through doorways protected with two (2) overlapping 4 mil polyethylene sheets. The clean room (or change room) shall be equipped with suitable hooks, lockers, shelves, etc. for workers to store personal articles and clothing. The shower room shall be contiguous to the clean room and equipment room. All personnel entering or leaving the work area shall pass through the shower room. The number of showers provided shall satisfy the requirements of OSHA 29 CFR 1910.141 (d) (3) (ii). Warm water shall be supplied to the showers. The equipment room (dirty room) shall be situated between the shower room and the work area, and separated from both by means of suitable barriers or overlapping flaps such as will prevent the free passage of air or asbestos fibers.

2. (b) No person or equipment shall leave the asbestos abatement project work area unless first decontaminated by showering, wet washing or HEPA vacuuming to remove all asbestos debris. No asbestos contaminated materials or persons shall enter the clean room.

3. Where feasible, decontamination systems shall abut the work area. In situations where it is not possible, due to unusual conditions, to establish decontamination systems contiguous to the work area, personnel shall be directed to remove visible asbestos debris from their persons by HEPA-filtered vacuuming prior to donning clean disposable coveralls while still in the work area, and proceeding directly to a remote decontamination system to shower and change

clothes.

4. In specific situations where the asbestos contractor determines that it is not feasible to establish a contiguous decontamination system at a work site, the asbestos contractor shall provide written notification and provide a copy to the facility owner of intent to utilize a remote decontamination system. Such systems must be operated in conformance with 29 CFR 1926.1101(j). Such notice shall be made with the notification required under Section 19a-332a-3.

5. Each room shall be separated from other rooms by a double flap of 6-mil polyethylene sheeting acting as an airlock. This shall be designed to minimize fiber migration and airflow between the decontamination unit rooms. A separate equipment and waste decontamination unit shall also be constructed. This can be adjacent to the personnel shower room.

6. The rooms shall be framed with 2" X 4" lumber, masked, sealed and attached to the entry/exit ways of asbestos/lead work areas.

7. The rooms together shall be referred to as the Decontamination Unit. A Decontamination Unit will be required for each separate containment area, if work is to be divided into sections.

8. For those areas deemed acceptable for the utilization of glovebags, a remote Decontamination Unit can be used.

9. The Equipment Room shall serve as a transfer room for decontamination procedures to occur in. This room shall be vacuumed and washed whenever necessary in order to prevent asbestos dust and debris accumulations or when required by the ENGINEER. Workers leaving the containment shall remove and dispose of disposable protective suits in the Equipment Room and proceed into the Shower Room.

10. The Shower Room shall contain an appropriate number of shower heads supplied with hot and cold water adjustable at the tap. Uncontaminated soap, shampoo, and towels shall be available at all times. The shower water shall be drained, collected, and filtered through a system with at least 5.0-micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall either be discharged in accordance with the applicable local codes or otherwise disposed of as asbestos waste. Contaminated filters shall be disposed of as asbestos waste.

11. The Clean Room shall store abatement workers' clean protective clothing and clean respirator equipment. Contaminated clothing, respirators, tools, equipment, or other materials shall not be allowed into the Clean Room or beyond. The Clean Room will serve as an access for personnel entering the work area, and for the donning of respiratory protection and protective clothing. The CONTRACTOR shall provide space in the Clean Room for the workers' personal clothing. This shall be in the form of lockable lockers.

C. HEPA Filtration

Adequate negative pressure shall be provided within the enclosure as specified below.

1. After asbestos work area is totally isolated, and prior to commencement of work, the ENGINEER will perform a visual inspection of the work area. This will consist of checking the integrity of barriers including smoke testing the containment if deemed necessary by the ENGINEER. This does not in any way relieve the CONTRACTOR'S responsibilities to ensure the isolation of the work area. The volume of air within the contained work area shall be changed a minimum of four (4) times per hour. A pressure differential reading of -0.02 inches of water shall be maintained in the negative pressure work area relative to adjacent areas. A manometer with a strip chart recorder shall be used to show that the proper pressure differential is being maintained.

2. Equipment used for producing a negative pressure work area shall have a filtering device that is at least 99.97% efficient at a 0.3-micron pore size. Filters meeting these standards are referred to as High Efficiency Particulate Absolute (HEPA) filters. The HEPA filtration units shall be equipped with the following:

    a. Magnehelic gauge to monitor the unit's air pressure difference across the filters and be able to interpret magnehelic readings to cubic feet per minute (CPM).
    b. An affixed label, clearly marked and conspicuous, showing the most recent installation date and hour reading of the primary internal HEPA filter.
    c. A clock to record the unit's operation time.
    d. Automatic shut off for filter failure or absence.
    e. Audible alarm for unit shutdown.
    f. Amber flashing warning light for filter loading.
    g. The unit must be equipped with a safety system that prevents it from being operated with the HEPA filter in an improper orientation.
    h. All flexible ducting, vent tubing, adapter plates and other equipment used for the passage of filtered air shall be undamaged, uncontaminated, and free of air leaks at all points.

3. Pre-filters shall be changed frequently during the abatement.

4. All HEPA units shall exhaust to the outside of the building.

5. Air movement shall flow uninterrupted from outside the work area through the Decontamination Unit into the work area. There shall be no other openings for air to enter the containment unless approved by the ENGINEER in writing.

6. HEPA filtration units shall be placed as far as possible from the air intake to the containment to prevent short cycling of fresh air.

7. This containment, along with the decontamination chamber, shall constitute the critical containment of the work area from the surrounding areas. All openings to this critical containment are to be sealed except where air must enter the work site due to the use of exhaust equipment.

8. Unless approved by the ENGINEER, air shall enter the critical containment only through the Decontamination Unit. A pressure differential meter will be installed and maintained. If pressure differential drops below -0.02 inches of water, stop work until proper negative pressure is restored.

9. Written modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated.

10. Written modifications to these specifications must be made to the ENGINEER for review before they can be used for work on this project.

D. ACM Removal

1. Asbestos removal will not begin until the ENGINEER has given authorization to proceed. This authorization will be given after the removal area has passed a visual inspection by the ENGINEER based on the criteria presented herein. The ENGINEER reserves the right to inspect the work area prior to start of abatement. The ENGINEER also reserves the right to inspect the work area at any time and to order the CONTRACTOR to stop work.

2. All ACM shall be removed utilizing full containment and negative air filtration (as appropriate).

3. All ACMs shall be sufficiently saturated/wetted to reduce fiber release so that the airborne fiber concentration does not exceed the established OSHA Permissible Exposure Limits (PELs).

4. Dry removal will not be permitted at any time during this project.

5. All ACM shall be carefully removed and placed into double 6-mil polyethylene bags or fiber drums for disposal. All bags, containers or wrapped materials transported out of the work area shall be labeled with preprinted labels required by Federal EPA, OSHA and the Department of Transportation regulations. The name of the waste generator (Owner) and the project location address shall also be placed on each bag/drum.

6. Fine cleaning of residual asbestos-containing material shall consist of carefully scraping or brushing the material from surfaces. The recommended method for brushing a substrate after gross removal has taken place is to use a nylon brush. Wetting of the substrate shall also occur while this brushing is performed, since the chance of airborne fiber generation during fine cleaning still exists.

7. Clean-up activities shall include, but not be limited to, wet-wiping and vacuuming surfaces with a HEPA equipped vacuum. Work may continue only after the source of contamination is identified, corrected, and proper cleaning activities are implemented.

8. After brushing and scraping, surfaces shall be free of visible debris and fibers. A final wipe-

down of the substrate with wet, lint-free cloths shall take place in order to ensure proper cleaning. All surfaces including floors, walls, and ceilings shall also be HEPA vacuumed clean.

9. All visible ACM is to be removed by the CONTRACTOR before encapsulation procedures are allowed to begin. The ENGINEER will conduct an inspection of the work area prior to giving approval to begin encapsulation of the work area. The removal substrate must be clean and bare, and the entire work area must be free and clear of any suspect material for the CONTRACTOR to pass this visual inspection and begin encapsulation.

E. ACM Roof Removal

1. Exterior methods of asbestos abatement (An Exclusion Zone (barrier tap) with wet methods and drop cloths) for removal of the exterior ACM shall be utilized.

2. The Contractor shall be responsible for the removal of vegetation (i.e., small trees, brush, etc.) surrounding the building to allow for abatement/ demolition activities, as necessary, for the removal of roofing materials.

F. Encapsulation Procedures

1. The polyethylene barriers shall be cleaned of gross contamination before a lockdown sealant can be applied to the substrate.

2. After the substrate has been cleaned and all polyethylene barriers of the work area are cleaned of visible debris, the CONTRACTOR shall request a visual inspection of the work area by the Engineer.

3. Workers performing lockdown must wear disposable protective clothing and respirators suitable for asbestos. The encapsulation process shall not be treated any differently from the removal process in this respect.

4. All surfaces from which asbestos-containing materials have been removed shall be encapsulated. A minimum of one coat of lockdown encapsulant will be applied to both the substrate and the polyethylene sheeting serving as the containment barrier. If the lockdown material is being applied to irregular, grooved, or corrugated surfaces, it shall be administered from the opposing side, or at a right angle to the direction of the previous application.

5. The encapsulant shall be left to dry before the commencement of final air testing. After final clearance and inspection criteria have been met (See Section 4.1 regarding Final Clearances), the CONTRACTOR shall begin final take-down procedures.

G. Removal of Critical Barriers

1. No critical barrier shall be taken down until the final visual inspection and final clearance air tests are found to be below 0.010 fibers/cc by TEM or PCM (where applicable).

2. After a successful final visual inspection, encapsulation, and a successful final air test, the CONTRACTOR shall conduct the post abatement takedown.

3. All encapsulated polyethylene sheeting removed during takedown/used in the construction of the Decontamination Unit and Containment Area shall be bagged and disposed of as asbestos contaminated waste.

4. Areas exposed during this process shall be examined for traces of suspect material.

5. If any suspect material is found, it must be cleaned up by HEPA vacuuming and wet cleaning, and a coat of encapsulant shall be applied to the affected areas. Based on the amount of suspect material found, the Owner's Project Monitor and/or representative may request the use of misters in the surrounding area.

6. The CONTRACTOR will then implement the use of misters as a precautionary measure.

3.04 DISPOSAL OF ASBESTOS WASTE

A. All waste removal procedures shall be conducted in accordance with local, state and federal regulations.

B. The CONTRACTOR shall provide proof that disposal sites for all waste materials have current and valid permits to accept specific wastes at the time of the pre-construction meeting.

C. Receipts shall be obtained by the CONTRACTOR from the disposal/recycling site(s), and submitted to the Engineer upon request for final payment.

D. Warning labels having permanent, waterproof print and adhesive shall be affixed to all asbestos bags, trucks, drums (lids and sides), and other containers used to store and/or transport asbestos-containing material. Labels must be conspicuous and legible and contain the following warning:

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

E. The CONTRACTOR shall be responsible for all necessary precautions to prevent pollution by spilling during the performance of services and shall assume full responsibility for all CONTRACTOR-caused spills, which shall be cleaned up at the CONTRACTOR'S expense.

F. Temporary storage of asbestos waste on-site (inside) will be allowed in designated non-work areas only.

3.04 HOUSEKEEPING

A. Throughout the work period, the CONTRACTOR shall maintain the building and site in a standard of cleanliness as specified throughout these specifications.

1. Contaminated disposable clothing, respirator filters, and other debris shall be bagged and sealed at the end of each workday.

2. All asbestos generated by either removal or repair shall be bagged immediately and not be allowed to be left exposed at the end of each workday.

3. Respirators shall be thoroughly cleaned at the end of each workday and stored for the next day's use.

4. The CONTRACTOR shall retain all stored items in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection materials.

5. The CONTRACTOR shall not allow the accumulation of scrap, debris, waste material, and other items not required for completion of the work.

6. The CONTRACTOR shall provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the environment.

7. Daily, and more often if necessary, the CONTRACTOR shall inspect the work areas and adjoining spaces, and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

8. The CONTRACTOR shall maintain the site in a neat and orderly condition at all times.

3.05 QUALITY CONTROL

A. Many references to Owner may in fact be managed by the ENGINEER in lieu of the Owner, at the Owner's request, and the CONTRACTOR is required to regard the requests and interpretations of the ENGINEER as having full force unless expressly informed otherwise by the Owner.

B. Clearance Air Monitoring

1. NOTE: Encapsulation on all surfaces (horizontal & vertical) must be dry prior to final air sampling.

2. The air clearance acceptance criteria for this project is <0.010 fibers per cubic centimeter of air (f/cc) by Phase Contrast Microscopy (PCM) using the NIOSH 7400 Method for containments/asbestos abatement less than 1,500 SF/600 LF, otherwise, Transmission Electron Microscopy (TEM) air testing using the AHERA (40 CFR Part 763, Appendix A, Subpart E) Method will be utilized.

3. A sufficient number of samples to reliably characterize the workplace air quality will be taken. Air will be agitated by means of a small leaf blower prior to the test, and kept agitated by means of a small electric fan. The results of all samples must comply with the regulations set forth in this specification. Failure to meet the specified criteria will require the CONTRACTOR to reclean the designated work site and then the ENGINEER to repeat the final air clearance testing. All repeat air testing shall be the CONTRACTOR’S financial

responsibility. Cleaning and testing will be repeated until the specified criteria are met.

3.06 PERSONAL PROTECTION

A. Respirators and Protective Clothing

1. Protective Clothing

a. Personal protection, in the form of disposable Tyvek suits, and NIOSH approved respirators, are required for mechanics, CONTRACTOR supervision, Owner, ENGINEER, and visitors at the work site during the set-up, removal, and cleaning operations.
b. The CONTRACTOR shall provide all this protective equipment for workers, Owner, ENGINEER, and authorized personnel to access this work site.
c. Each worker shall be supplied with a minimum of two complete disposable uniforms every day.
d. Removal workers shall not be limited to two uniforms, and the CONTRACTOR will be required to supply additional uniforms as is necessary. Under no circumstances will anyone entering the removal area be allowed to reuse a contaminated uniform.
e. Work clothes shall consist of disposable full body suits, head covers, gloves, footwear, and eye protection. Street clothes are forbidden in the work area at all times, even under protective suits.

2. Respiratory Protection

a. The CONTRACTOR shall supply workers and supervisory personnel with NIOSH approved protective respirators and HEPA filters.
b. Appropriate respirator selection shall be determined by the daily personal samples being taken and strictly follow the guidelines set forth in the OSHA respiratory program 29 CFR 1910.134 and the Connecticut CTDPH Regulations 453 CMR 6.00. The respirators shall be sanitized and maintained according to the manufacturer's specifications. Appropriate respirators shall be selected using the information provided in OSHA Title 29 CFR Part 1910.1926 Final Rules. This determination has been made for this project. The CONTRACTOR shall utilize full-face PAPR respirators equipped with HEPA filters for all work. Disposable respirators shall not be considered acceptable in any circumstance.
c. The CONTRACTOR will maintain on site a sufficient supply of disposable HEPA filters to allow workers and supervisory personnel to change contaminated filters at least three (3) times daily. The CONTRACTOR is solely responsible for means and methods used and for compliance with applicable regulations.
d. Respirators shall be individually assigned to removal workers for their exclusive use.
e. All respiratory protection shall be provided to workers in accordance with the written submitted respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b) (1-11). A copy of this program shall be kept at the work site, and shall be posted in the Clean Room of the Decontamination Unit.
f. Workers must perform negative and positive pressure fit tests each a time a respirator is put on, whenever the respirator design permits.

g. Workers shall be given a qualitative fit test in accordance with procedures detailed in the OSHA 29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocols, for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

h. Upon leaving the active work area, the pre-filter shall be discarded, cartridges removed, and respirators cleaned in disinfectant solution and clean water rinse. Clean respirators shall be stored in plastic bags when not in use. The CONTRACTOR shall inspect respirators daily for broken, missing, or damaged parts.

3. Personal Sampling

a. The CONTRACTOR shall provide daily personal sampling to check personal asbestos exposure levels for the purpose of establishing respiratory protection needs.

b. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less.

c. Personal samples need not be taken every day after the first day if working conditions remain consistent, but must be taken every time there is a change in the removal operation, either in terms of the location or the type of work, or during any changes in personnel. Sampling will be to determine eight-hour Time Weighted Averages (TWA). The CONTRACTOR is responsible for personal sampling as outlined in OSHA Standard 1926.1101.

d. Sampling personnel shall be proficient in the taking of asbestos air samples as prescribed by NIOSH 7400, and must be supervised by an individual who has completed the NIOSH 582, or equivalent, training course.

e. Asbestos air sampling results shall be available for posting at the job site in written form no more than twenty-four (24) hours after the completion of a sampling cycle. The document shall list each sample's result, sampling time and date, individual monitored, flow rate, sampling duration, microscope field area, number of fibers per fields counted, cassette size, and analyst's name and company. Air sample analysis results will be reported in fibers per cubic centimeter.

END OF SECTION 02 08 00

SECTION 02 41 16 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Obtain City of Derby Demolition Permit

2. Verify that all utilities serving the building have been physically disconnected in accordance with City requirements. Most if not all, utility connections have been disconnected and pertinent documentation will be provided to the selected demolition contractor.

3. Work area preparation, including pre-clearing erection of protective barriers, fall protection, designated walkways, and installation of temporary traffic controls.

4. Demolition of the buildings with extended reach excavation equipment (or approved equal) and appropriate disposal, recycle or reuse of all C&D materials in accordance with applicable environmental regulations.

5. Dust control throughout duration of the project. No visible air emissions will be permitted; therefore, water and/or other means of dust control will be required during active periods of demolition.

6. Demolition and removal of the following:

a. Three story wood framed house at 43 Anson Street

b. Removing all below-grade construction and backfill with compacted granular fill up to existing grade.

c. Removal of all sidewalks, stairs, planters, and miscellaneous structures within the property limits.

7. Demolition and removal of the following:

a. Three story wood framed house at 187-189 Derby Avenue

b. Below grade construction shall be left-in-place, door and window openings in concrete foundation walls shall be covered by steel plates anchored to the concrete wall and backfilled with granular fill to match existing grade.

c. Disconnecting, capping, or sealing, and removing site utilities if required.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse. Include fasteners or brackets needed for reattachment elsewhere.

1.04 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data:

1. Demolition firm

2. Refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and adjacent property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain including means of egress from those buildings.

C. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.

2. Temporary interruption of utility services.

3. Shutoff and capping of utility services.

D. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by demolition operations. Submit before work begins

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

F. Submission of shipment records, manifests, and other pertinent transportation and disposal/recycle documentation for all recyclable building materials, white goods, solid wastes, and C&D debris.

G. Protection of concrete or masonry retaining walls and base slabs to help maintain stability of adjacent structures, retaining walls and base slabs, city owned sidewalks & roadways and above and below grade utilities and other adjacent site features.

H. Clean up of work area, including all trash debris, excess construction and demolition debris materials.

I. Restoration of all disturbed areas of the grounds and pavement to equal or better condition.

1.06 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.07 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

1.08 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than seventy-two (72) hours' notice of activities that will affect operations of adjacent occupied buildings.

2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

    a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

    b. Provide signing to detour pedestrians from construction site to other side of the street during the work.

C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

D. Hazardous Materials: Present in buildings and structures to be demolished. A report on the presence of hazardous materials is included in the bid documents. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.

2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. On-site storage or sale of removed items or materials is not permitted.

1.09 COORDINATION

A. Arrange demolition schedule so as not to interfere with operations of adjacent occupied buildings.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.02 SOIL MATERIALS

A. Satisfactory Soils: Comply with CTDOT form 818 requirements for “Compacted Granular Fill”.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in unplanned collapse of any portion of structure during building demolition operations.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.02 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

B. Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.

4. Transport items to storage area designated by Owner.

5. Protect items from damage during transport and storage.

3.03 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Utilities to be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.

1. Owner will arrange to shut off utilities when requested by Contractor.

2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.

3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.

4. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.04 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.

2. Provide temporary services during interruptions to existing utilities, if required as acceptable to Owner and authorities having jurisdiction.

a. Provide at least seventy-two (72) hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated.

1. Protect adjacent buildings and facilities from damage due to demolition activities.

2. Protect existing site improvements, appurtenances, and landscaping to remain.

3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.

4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.

6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.

7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.05 DEMOLITION, GENERAL

A. General: Demolish indicated buildings completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.

2. Maintain adequate ventilation when using cutting torches.

3. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction. Traffic control measures have been shown on the plan.

2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.06 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Salvage: Items to be removed and salvaged are indicated on Drawings.

D. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely at 43 Anson Street only

E. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures back to property line. Abandon and cap utilities outside of this area.

3.07 SITE RESTORATION

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Section 312000 "Earth Moving."

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.08 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

B. Promptly repair damage to City owned sidewalks, curbs or roadways damaged by building demolition or removal of demolition debris.

3.09 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.10 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport as required throughout the duration of the project.

END OF SECTION 02 41 16

SECTION 02 82 13 - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

B. Sections containing requirements related to this Section include, but are not limited to:

1. Section 028200 – Selective Hazardous Materials Abatement Demolition
2. Section 028313 - Lead Paint Awareness
3. Section 028416 – Universal Waste Removal/Recycling
4. Section 028432 – PCBs Greater than 50 PPM Abatement
5. Performance-Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials (as applicable), and Paints

1.02 CONSULTANT

A. The Owner shall retain SLR International Corporation (SLR) for the purposes of project management and monitoring during Asbestos Abatement. The Consultant will represent the Owner in all phases of the abatement project at the discretion of the Owner. The Asbestos Abatement Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the abatement, submission of data, and daily field punch list items. The State of Connecticut licensed Asbestos Consultant — Project Designer is Ryan Rouillard (license no. 000307).

1.03 USE OF THE CONTRACT DOCUMENTS

A. It shall be incumbent upon the Contractor to visit the Site and determine what exists, its condition, and what will be required to accomplish the Work intended by the Contract Documents. No increase in the Contract Sum will be permitted as a result of the Contractor's failure to visit the Site and understand the existing conditions.

B. All work shall comply with the Contract Documents and with applicable Codes, laws, regulations, and ordinances wherever applicable. The most stringent of all the foregoing shall govern.

C. It is not intended that the Specifications show every detail of the Work, but the Contractor shall be required to furnish within the Contract Sum all material and labor necessary for the completion of the Work in accordance with the intent of the Specifications.

D. In case of ambiguity among the Contract documents, the more stringent requirement as determined by the Consultant shall prevail.

E. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant, to correct any conflicts.

F. All items, not specifically mentioned in the Specifications but implied by trade practices to complete the work, shall be included.

G. This specification and drawings cover the proper and legal removal and disposal of all asbestos containing materials (ACM) and asbestos contaminated waste from the Community Life Building project site located at 2, 4, 10, 14 Mill Lane residences and garages/sheds, and 99 Garden Street (Garage), in Farmington, Connecticut. The abatement activities shall comply with all aspects of the contract documents and Federal, State and local requirements.

H. Whenever there is a conflict or overlap within these specifications and between applicable codes and regulations, the most stringent provision specified shall apply.

1.04 EXAMINATION OF THE SITE

A. It is understood that the Contractor has examined the Site and made his own estimates of the facilities and difficulties attending the execution of the Work, and has based his price thereon.

B. Except for unforeseeable concealed conditions as determined by the Consultant, the Contractor shall make no claim for additional cost due to the existing conditions at the Site.

1.05 CONTRACTOR QUALIFICATIONS

A. All bidders shall submit a record of prior experience in asbestos abatement projects, listing no less than three (3) completed jobs in the past year, with all projects of similar size and scope. The Contractor shall list the experience and training of the project foremen and all on-site personnel. The information that should be included is as follows:

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

B. The Contractor selected must appear on the approved list of Asbestos Abatement contractors on file at the State of Connecticut Department of Public Health (CTDPH) and hold a valid license for asbestos abatement within the State of Connecticut.

C. Submit a written statement regarding whether the Contractor 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. The Contractor shall be responsible for obtaining all necessary or required permits from the Federal, State and local agencies having jurisdiction over this asbestos abatement project. Failure on behalf of the Contractor to obtain these permits shall not result in any extension for the timely results of completion of the work set forth in the Contract. The Contractor shall be responsible and shall be required to pay any administrative penalties imposed on the owner for actions taken or lack thereof by the Contractor.

E. Work includes any and all selective demolition and protective measures required to access and remove ACM and maintain a safe working environment.

F. Upon completion of asbestos removal, the contractor shall provide completed, signed and notarized statements indicating that all asbestos-containing materials identified in the scope of work and project description (Section 1.08 and 1.09) were properly removed and disposed of in accordance with applicable Federal, State, and local regulations.

G. All contractors submitting a bid for this work shall visit the work site, attend a pre-bid meeting and walk-through, to be scheduled by the Owner, and be familiar with the work in its entirety. The contractors pre-meeting attendance and bid submission affirms his/her acceptance of the work, site, and building conditions as is.

H. The contractor shall be responsible for paying the utility bills for the use of power and water (unless owner agrees to supply at no cost to contractor). However, if any such temporary facilities cannot be provided, it shall be the contractor's responsibility to provide all temporary connections and hook-ups as well as obtaining permits and paying all fees for making such services available for his work as is necessary. If necessary, the Contractor shall provide temporary services as specified herein, and as required or as necessary to carry out the work. This may include such items as portable generators, water tank trucks, pumps and necessary accessories or the means and equipment and services necessary to temporarily connect to and maintain such services from adjacent utility systems. The use of portable generators will require 24 hour a day, 7 day a week continuous operation if negative air machines in containments are powered by them. This continuous operation must remain in place from the time the pre-abatement visual is completed up until clearance re-occupancy sampling results have passed. The contractor will pay the owner a $2,500 fine should the power found to not be running the negative air machines in active abatement containments. This fine will apply daily and the contractor is also responsible for paying all CTDPH/CTDEEP penalties that may be imposed on the contractor and owner.

I. All Contractor personnel involved with asbestos removal work must be thoroughly familiar with the standard operating procedures of the Contractor for removal work as well as all applicable Federal and State regulations governing asbestos removal work.

J. The contractor is responsible for any abatement/remediation if the adjacent properties become contaminated from abatement/remediation/demolition activities. All costs associated with contamination and subsequent abatement/remediation will be the contractor’s responsibility, not the building owner.

K. The Supervisor and Asbestos Abatement workers shall be accredited in accordance with EPA regulation 40 CFR Part 763, subpart E, Appendix C; and CTDPH regulations as outlined in Section 19a-332a-1 through 19a-332a-16 (Standards for Asbestos Abatement), and Section 20-440-1 through 20-440-9 and 20-441 (Licensure and Training Requirements for Persons Engaged in Asbestos Abatement and Consulting Services).

L. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the work. Any discrepancies noted shall be brought to the attention of the Owner and Engineer prior to bidding the project. No claims for extras shall be made during construction/abatement/ demolition.

M. Work includes necessary selective demolition and protective measures required to access and remove ACM and maintain a safe working environment. Asbestos containing materials that

would be impacted by selective demolition of wall, ceiling and floor cavities shall be performed within negative pressure enclosure.

N. It is the sole responsibility of the Contractor to determine what, if any patents are applicable to the Project. The Contractor will pay all royalties and/or license fees, and will defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Asbestos Safety Control Monitor, Design Sub-Consultant, and Construction Manager harmless from loss, including attorney's fees, on account thereof.

O. The Contractor shall coordinate with the Consultant and maintain the project schedule.

P. The abatement contractor shall hold and document daily pre-abatement safety tool box meeting to review safe work practices and emergency communication program for the project. The abatement contractor's supervisor and the consultant's project monitor must also ensure that proper fire extinguishing equipment is present. The supervisor shall be knowledgeable in use of fire extinguishing equipment, and emergency exit plans.

1.06 TESTING LABORATORY SERVICES

A. The Contractor shall submit to the Consultant the name; address and qualifications of proposed laboratories intended to be utilized for sample analysis as required by this section.

1.07 ADDITIONAL GENERAL REQUIREMENTS

A. The Asbestos Abatement Contractor shall employ a competent Asbestos Abatement Supervisor with at least three (3) years' experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the specifications and defined in 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 Contractor 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 Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.

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

D. The Contractor 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 of to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

1.08 SCOPE OF WORK

A. This specification and drawing HM -01 cover the proper and legal removal and disposal of all asbestos-containing materials (ACM) and asbestos contaminated waste from the residences located at 2, 4, 10, 14 and 99 Garden Street properties in Farmington, Connecticut. The abatement activities shall comply with all aspects of the contract documents and Federal, State and local requirements. There is interior and exterior, friable/non-friable asbestos containing materials (miscellaneous materials) identified on the site. PCB source sampling not yet collected for all building materials may provide PCBs greater than 50 ppm associated with the residences (typically associated with damp-proofing on the exterior walls, and exterior expansion joint caulking compounds). Lead based paint was found in the original building interior plaster walls and associated baseboard trim, exterior window trim/sashes, wood clapboard siding, and bathroom ceilings/walls, etc. Universal/regulated wastes are located throughout the buildings. Some abatement will require demolition to access asbestos containing materials. The contractor will be responsible for performing enough demolition to access all asbestos containing materials as well as additional areas at the instruction of SLR.

1.09 PROJECT DESCRIPTION

A. The Site residences to be demolished were all constructed circa 1960s or earlier with renovations/additions prior to the 2000's. They are all two-story residential buildings with each of an approximate total square footage of 6,000 square feet (except the 2 Mill Lane apartment at a total of approximately 600 square feet) with attic space and a crawl space/void beneath the additions/porches (as applicable).

B. The base bid includes the removal and disposal of all asbestos containing materials as identified herein, and on the architects drawings by workers meeting requirements of OSHA 1926.1101 for Class 1 and 2 work. The base bid will include the cost for removal and disposal of asbestos containing pipe debris in soils beneath crawl spaces of porches/additions, and/or throughout the interior (in/on ceilings, on fiberglass insulation and in walls throughout – contamination and gross debris), exterior materials associated with the residences, and assumed black materials between the building foundation and asphalt (assumed to also be foundation damp-proofing). Work includes filing and permitting all necessary applications, notifications, requirements and fees; insurance; necessary design services; providing skilled, licensed and certified labor; materials; and equipment necessary for proper preparation, handling, removal and legal disposal of all asbestos-containing materials and asbestos contaminated waste from the subject buildings in accordance with all requirements of applicable Federal, State and local regulations, these

specifications and the contract drawings. The following materials and amounts are shown in SLR's Survey Report (Appendix A) and included in the base bid work.

Base Bid Work

Table 1 – Asbestos-Containing Materials

Sample ID	Sample Description	Sample Location	Asbestos Analytical Result	Approximate Quantity[1]
2 Mill Lane				
2M-003A	Sink Undercoating	Kitchen - Sink	5%	1 Sink
2M-012A	Joint Compound (White)	Rear Entry Foyer - Walls	2%	1,200 SF[2]
2M-013A	Composite Gypsum and Joint Compound	Rear Entry Foyer - Walls	<1%	1,200 SF[2]
4 Mill Lane				
4M-004A	Soil	Basement - Unfinished	1.25%	18.5 CY
1-10-SD-74[5]	Adhesive under Linoleum Flooring	019 (2nd floor bath)	14%	80 SF
10 Mill Lane				
10M-002H	Plaster Base Coat	2nd Floor Bedroom (Front) - Wall	<1%	6,800 SF for the house (400 SF for the bedroom only)[2]
10M-003A	Cloth Wrap (White)	Basement - Pipe	5%	100 LF[3]
10M-004A	Insulation Beneath Cloth Wrap (Gray)	Basement - Pipe	50%	10 Fittings[3]
10M-013A	Joint Compound (White)	1st Floor Bath - Wall	2%	100 SF[2]
10M-013A-Gypsum Board/Joint Compound Composite	Gypsum Board/Joint Compound Composite	1st Floor Bath - Wall	<1%	100 SF[2]
10M-015A	Joint Compound (White)	1st Floor Bath - Ceiling	2%	25 SF[2]
10M-015A-Gypsum Board/Joint	Gypsum Board/Joint Compound Composite	1st Floor Bath - Ceiling	<1%	25 SF[2]

Sample ID	Sample Description	Sample Location	Asbestos Analytical Result	Approximate Quantity[1]
Compound Composite				
10M-017A	Gray Pipe Thread Caulk	2nd Floor - Pipes in Walls	2%	20 LF[3]
N/A - Inaccessible	White Window Glaze	1st Floor Bay Window	Assumed	300 LF
14 Mill Lane				
14M-005A	Pink Leveler Beneath Linoleum Sheet Floor (Stone Pattern Painted Blue)	1st Floor - Kitchen Floor	10%	100 SF
14M-012A	Sink Undercoating (Pink)	1st Floor - Kitchen Floor	2%	1 Sink
14M-018A	Yellow Pipe Thread Caulk	Interior - Pipes	3%	40 LF[3]
14M-023A	White Window Glaze	Garage	30%	100 LF[4]

SF = Square Feet; LF = Linear Feet; CY = Cubic Yard; <1 = "trace"; N/A = Not Applicable

[1] Estimated quantities are based on a cursory field evaluation of the Site buildings, and actual quantities may vary significantly, especially due to asbestos containing materials being present in hidden areas not evaluated as part of this survey, covered by loose items, and/or inaccessible areas (collapsed locations and debris piles) discovered during this survey.

[2]Asbestos containing joint compound and plaster base coat ("<1%" amounts of asbestos) is associated with other non-ACM wall materials throughout the building. Further exploratory methods may be needed to differentiate the several joint compound and plaster base coat materials for more definitive quantification, otherwise gypsum board and plaster surfaces (and associated substrate building materials such as wood studs, beams, and plaster coats as applicable) are assumed to be asbestos-contaminated throughout the Site buildings. The CTDEEP/CTDPH does allow for composite sampling of inseparable wall board systems, if said materials are used solely for hiding seams and nail/screw heads. As specified by the USEPA, if the wallboard systems are covered with a layer of spackle/joint compound (i.e., plaster wall and ceiling systems) for the purposes other than hiding seams and nail/screw heads, then that is considered a separable material and would be sampled separately. Additional sampling may be required for the plaster wall/ceiling systems to more accurately determine an appropriate removal activity and disposal waste stream characterization throughout any given structure.

[3]Pipe/fitting insulation and pipe thread caulk (various types/sizes) may be discovered on various size pipes/fittings within the wall, ceiling, and floor chases of the Site buildings.

[4]Wood-framed window systems associated with Site building, 14 Mill Lane garage, are approximately 2-feet by 4-feet in size and equate to approximately 100 LF of asbestos glaze per opening.

[5]Eagle Environmental, Inc. positive sample from survey conducted in February 2014.

Note 1: CTDPH regulations specify that non-friable materials with a trace (<1%) result must be disposed of as asbestos. If the material is friable (i.e., materials that may be easily reduced to a powder by applying hand pressure such as pipe/fitting insulation, plaster coats, etc.) during disturbance/abatement, OSHA, and the USEPA (under the asbestos NESHAP regulation) requires the material(s) be abated in accordance with the asbestos removal regulations (work to be performed in a controlled environment/ containment).

Assumed asbestos materials inaccessible for testing during the Site survey include (but may not be limited to) the following:

- Subsurface damp-proofing on some exterior foundation walls (if applicable);
- Vapor-barrier materials within interior wall cavities;
- Behind wall/ceiling surfaces for 4 and 14 Mill Lane;
- Underground asbestos-cement water/sewer piping;
- Electrical (black) equipment boards/distributor control & panel boards (i.e., electrical switchboards, electrical bus bars (if applicable), HVAC equipment, and interior of transformers and fuse boxes); and,
- Interior diodes of small and large motors.

C. Work Sequence – The contractor will install critical barriers, negative air units and decontamination units. The contractor will perform interior demolition of all ―clean non-movable objects, wall materials, ceiling materials, building materials and finishes, etc. – everything to access roofing debris above ceilings and behind/within all walls. The contractor may remove clean materials (as agreed upon with SLR project monitor) as normal construction debris, and then contaminated materials and soils beneath crawl spaces of residences with pipe debris, as asbestos-containing/contaminated. Polyethylene sheeting/containment will be installed after clean demolition has occurred. All the interior asbestos-containing/contaminated plaster walls and joint compound/gypsum surfaces, must be demolished within containment to access the pipe/fitting insulation/debris throughout. Non-ACM removable ceilings can be removed prior to work start as long as they are not contaminated with asbestos, lead, and/or PCB materials. This will also include removing the fiberglass batt insulation throughout (in walls and ceilings and stuck in the ceiling rafters, etc.). The contractor will abate the exterior materials once the interior removal/decontamination has been completed and passed a final visual inspection, and possibly re-occupancy air sampling, should re-occupancy be required. If re-occupancy is not required following abatement, prior to demolition, a variance can be applied for through the CTDEEP/CTDPH to avoid re-occupancy clearance air sampling. Any materials tested and determined PCBs throughout Site buildings, will be remediated (PCBs below/above 50 ppm) as part of abatement activities respectively, prior to demolition being completed. SLR will perform PCB adjacent surface sampling of the substrate flooring/foundation/ground materials after the remediation of finish materials has been completed. No contamination of adjacent properties is allowed during abatement/remediation/demolition and the contractor is responsible for all costs associated with possible contamination and remediation. The assumed black material between the asphalt and building foundations (if applicable), and/or foundation damp-proofing (if existing) will be abated as part of exterior demolition as well.

D. Additional materials as discovered outside of those listed will be covered by unit prices if all is not listed as the quantity. Quantities are estimates only and should be verified by the Contractor. Some of the work will be performed in multiple mobilizations at different periods of time in conjunction with other trades (i.e., other trades work, demolition work, etc.). MSD sheets for chemicals to be used during the project must be submitted to the Owner's Representative prior to site delivery. The contractor is responsible for providing temporary water, power, and heat as needed at the Site. Temporary lighting within the work areas must be connected to Ground Fault Circuit Interrupter (GFCI) Power Panels installed by a State of Connecticut licensed electrician

and located outside of the work areas. The contractor shall be responsible for paying for the use of power and water. It shall also be the contractor's responsibility to provide all fixed and temporary connections and hook-ups as well as obtaining permits and paying all fees for making such services available for his work as is necessary. The Contractor shall provide services as specified herein, and as required or as necessary to carry out the work. This will include such items as temporary hard line installation, portable generators for short term work, water tank trucks, pumps and necessary accessories or the means and equipment and services necessary to temporarily connect to and maintain such services from adjacent utility systems. The contractor is responsible for contacting all utility services and getting power connections from the electrical lines located on or adjacent to the properties. All power and water must be supplied 24 hours a day throughout the abatement project. CTDPH will be notified immediately if active containments do not have sufficient negative pressure throughout the abatement process until acceptable re-occupancy air results are received (unless a waiver is obtained prior to abatement activities that no re-occupancy will be required). The use of portable generators will require 24 hour a day, 7 day a week continuous operation if negative air machines in containments are powered by them. This continuous operation must remain in place from the time the pre-abatement visual is completed up until clearance re-occupancy sampling results have passed. The contractor will pay the owner a $2,500 fine should the power found to not be running the negative air machines in active abatement containments. This fine will apply daily and the contractor is also responsible for paying all CTDPH penalties that may be imposed on the contractor and owner.

E. The building abuts several properties, some of which are residential. The contractor is responsible for taking pre-abatement/demolition soil and other samples from adjacent properties and will he held responsible for any abatement/remediation should the adjacent properties become contaminated. All costs associated with contamination and subsequent abatement/remediation will be the contractors responsibility, not the building owner.

F. The general/abatement contractors shall only use heavy equipment operators that have proper asbestos and/or Hazardous Waste Operations (HAZWOPER) training when disturbing/removing/moving and packing asbestos, lead and PCB containing materials. Acceptable training for asbestos can be 32 hour asbestos worker training or 16 hour asbestos operations and maintenance training with annual refresher training. 40 hour HAZWOPER training and annual refresher training is required for operators handling lead and/or PCB containing/contaminated materials. All operators must also have current medicals, fit test data and wear respirators during work. Respirator usage can be suspended if personal air sampling shows appropriate air concentrations complying with OSHA for asbestos containing materials.

G. The following materials were sampled and found not to contain asbestos throughout the building/additions: Joint/taping compound/plaster base coat - walls and ceilings, flooring/adhesives/levelers, sink undercoating materials, pipe/fitting insulations, pipe thread caulk (white and yellow), window glaze, assumed black damp-proofing exterior walls, and/or other assumed materials listed above/not yet determined.

H. The Owner shall retain a Consultant for the purposes of project management and monitoring during Asbestos Abatement. The Consultant will represent the Owner in all phases of the abatement project at the discretion of the Owner. The Asbestos Abatement Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the abatement, submission of data, and daily field punch list items. The State of Connecticut licensed Asbestos Consultant — Project Designer is Ryan Rouillard (license no. 000307).

1.10 DEFINITIONS

A. The following definitions relative to asbestos abatement apply:

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

2. Air Monitoring - The process of measuring the fiber concentration of an area or of a person.

3. Amended Water - Water to which a surfactant has been added.

4. 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, which have been chemically altered.

5. Asbestos Felt - a product made by saturating felted asbestos with asphalt or other suitable bindery, such as a synthetic elastomer.

6. Asbestos Fibers - Those particles with a length greater than five (5) microns and a length to diameter ratio of 3:1 or greater.

7. Asbestos Work Area - a regulated area as defined by OSHA 29 CFR 1926.1101 where asbestos abatement operations are performed which is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation, access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.

8. Asphalt Shingles, Composition Shingles or Strip Slates: (Pitched Roof Shingle) - a roofing material manufactured by saturating a dry felt with asphalt then coating the saturated felt with a harder asphalt mixed with a fine mineral, glass fiber, asbestos or organic stabilizer. All or part of the weather side may be covered with mineral granules, or with powdered talc or mica.

9. Base Flashing (roof) - the flashing provided by upturned edges of a water tight membrane on a roof. May contain metal and associated waterproofing material or combination of roofing felts and waterproofing at the joint between a roofing surface and a vertical surface

such as a wall or parapet. Also base flashing may be present at perimeter of completely flat roof.

10. Built-Up Roofing (Composition Roofing, Felt and Gravel Roofing, Gravel Roofing) - a continuous roof covering made up of laminations or plies of saturated or coated roofing felts, alternated with layers of asphalt or coal-tar pitch and surfaced with gravel, paint or finish coat.

11. Caulking - resilient mastic compound often having a silicone bituminous or rubber base; used to seal cracks, fill joints, and prevent leakage. Typical applications: around windows, and doors. Caulking is at joints between two dissimilar materials. (i.e. masonry to wood, masonry to steel).

12. Clean Room - An uncontaminated area or room, which is a part of the worker decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.

13. Clearance Sampling - Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Air samples collected by the air sampling professional having a fiber concentration of less than 0.01 fibers/cc of air in each of five (5) samples collected inside the containment will denote acceptable clearance sampling by Phase Contrast Microscopy. or Five air samples collected inside the containment by the air sampling professional having an average asbestos concentration of less than 70 structures per square millimeter of air will denote acceptable clearance sampling for Transmission Electron Microscopy.

14. Competent Person - As defined by 29 CFR 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. Who has authority to take prompt corrective measures to eliminate such hazards during asbestos removal. Competent person shall be properly trained in accordance with EPA's Model Accreditation Plan.

15. Curtained Doorway - A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.

16. Damp Proofing - application of a water impervious material to surface such as wall to prevent penetration of moisture, typically at foundation or below grade surface.

17. 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.

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

19. Equipment Room - Any contaminated area or a room that is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.

20. Fixed Object - Unit of equipment or furniture in the work areas that cannot be removed from the work area.

21. Friable Asbestos Materials - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.

22. Glazing Compound - any compound used to hold window glass in place, also referred to as putty, or glazier's putty, is not field applied, usually installed during manufacture of windows.

23. Hepa Filter - High Efficiency Particulate Air (HEPA) filter in compliance with ANSI Z9.2-1979.

24. Hepa Vacuum Equipment - Vacuum equipment equipped with an I IEPA filter system for filtering the effluent air from the unit.

25. Movable Object - Unit of equipment of furniture in the work area that can be removed from the work area.

26. Negative Air Pressure 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.

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

28. Permissible Exposure Level (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The new level established by OSHA 29 CFR 1926.1101 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 Contractor is responsible for maintaining work areas in a manner that this standard is not exceeded.

29. Project Monitor - A professional capable of conducting air monitoring and analysis of schemes. 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 29 CFR 1926.1101.

30. Regulated Area - An area established by the employer to demarcate where Class I, II, and III asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility that they may exceed the PEL.

31. Shower Room - A room between the clean room and the equipment room in the work decontamination enclosure with hot and 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.

32. Waterproofing - material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water, includes concealed conditions (applications around doors, windows, and in wall cavities). Sometimes combined with felts.

1.11 SUBMITTALS

A. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below to the Owner and Engineer for review:

1. Valid Contractor's Asbestos Removal license issued by the Connecticut Department of Public Health (CTDPH).

2. Certificate of insurance covering work of this Contract.

3. Name, experience of supervisors, and copies of valid Asbestos Supervisor permits issued by the CTDPH.

4. Citations/Violations/Legal Proceedings: Submit a statement describing:

   a. Any citations, violations, criminal charges, or legal proceedings undertaken or issued within the past two years by any law enforcement, regulatory agency, or consultant concerning performance on previous abatement contracts. Briefly describe the circumstances citing the Project and involved persons and agencies as well as the outcome of any actions.

   b. Any litigation or arbitration proceedings arising out of performance on past Projects.

5. Work Schedule:

   a. Show the complete sequence of abatement activities and the sequencing of Work within each building section.

   b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.

   c. Show projected percentage of completion for each item, as of the first day of each month.

   d. Show final inspection dates.

6. Project Notifications: As required by Federal, State, and local regulatory agencies together with proof of transmittal (i.e. certified mail return receipt). The contractor shall notify the Connecticut Department of Public Health at least ten (10) days prior to the start of asbestos abatement, as required by the Regulations of Connecticut State Agencies, Section 19a-332a-3.

7. Abatement Work Plan: The Contractor shall design, prepare and submit to the Authority for review and approval, a detailed asbestos removal plan for the project in accordance with the applicable regulations and these specifications. The plan shall, at minimum, show limits of containment and work areas, methods of removal, location of decontamination units, number and location of negative air units, waste routes, waste storage location, entrance and exits, emergency exits, and any necessary details. Work shall not commence until the Authority has reviewed, commented and approved the Contractor's asbestos removal plan. Provide plans which clearly indicate the following:

    a. All Work Areas/containment numbered sequentially.

    b. Locations and types of all decontamination enclosures.

    c. Entrances and exits to the Work Areas/containment.

    d. Type of abatement activity/technique for each Work Area/containment.

    e. Number and location of negative air units and exhaust. Also provide calculations for determining number of negative air pressure units.

    f. Proposed location and construction of storage facilities and field office.

    g. Location of water and electrical connections to building services.

    h. Waste transport routes through the building to the waste storage container.

        1) Contingency plan.

8. Name, location, and applicable licenses for primary and secondary landfill for disposal of asbestos-containing material and asbestos contaminated waste.

9. Summary of proposed materials, and equipment to be used.

10. Certification that vacuums, temporary ventilation equipment, and other equipment to be used meet the ANSI 29.2-79 requirement for airborne fiber filtration.

11. If rental equipment is to be used in work area or to transport asbestos contaminated waste, provide notice to rental agency stating intended use of equipment, with copy to the Authority.

12. Summary of the Contractor's workforce by disciplines. Include a notarized statement signed by the Contractor documenting that all proposed workers, by name, have received all required medical examinations and have been properly trained and certified in asbestos removal work, respirator use, to appropriate EPA and OSHA standards for asbestos removal. Include on statement Contractor's compliance with OSHA medical surveillance requirements.

13. The Contractor shall submit his/her Health and Safety Plan and Standard Operating Procedures for this project for use in complying with the requirements of these Specifications and applicable regulations. The Plan shall include, but shall not be limited to: distribution and use of amended water, the sequencing of asbestos work, detailed schedules and dates, shift times, and work activities during that shift, the interface of other trades involved in the performance of work, methods to be used to assure the safety of

building occupants and visitors to the Site, security of the work areas, and a detailed description of the methods to be employed to control airborne fiber concentrations.

14. Written description of emergency procedures to be followed in case of injury or fire. This section must also include evacuation procedures, sources of medical assistance and procedures for access by medical personnel.

15. Level of respiratory protection intended for each operation for the project.

B. Project Closeout Submittals: Submit the following to Owner and Consultant at the close out of the Project (no later than 15 days subsequent to site demobilization):

1. Originals of all waste disposal manifests, seals, and disposal logs.

2. OSHA compliance air monitoring records conducted during the Work.

3. Daily progress log.

a. A list of all Workers used in the performance of the Project, including name, social security number, and CTDPH certification number.

b. For each Worker used in the performance of the Project, submit required employee statements including Medical Examination Statement, Worker's Acknowledgment Statement, Respirator Fit Test, and Employee Training Statement.

c. Certification for the laboratory that analyzed the OSHA personnel air samples.

d. A notarized ―Release of Liens in a form acceptable to the owner. Such notarized release of liens shall certify that all sub-Contractors, labor suppliers, etc. have been paid their pro rate share of all payments to date for the project, that the Contractor has no basis for further claims, and will not make further claims for payment in any account after the first payment is made to him.

1.12 MEDICAL REQUIREMENTS

A. Prior to potential exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1910.1001, and 29 CFR 1926.1101.

1. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1910.1001, and 29 CFR 1926.1101 within the past year.

2. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within thirty (30) calendar days before or after the termination of employment in such occupations.

B. As required by 29 CFR 1910.1001, and 29 CFR 1926.1101 maintain complete and accurate records of employees' medical examinations for a period of thirty (30) years after termination of employment and make records of the required medical examinations available for inspection

and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health (NIOSH), authorized representatives of either of them, and an employee's physician upon the request of the employee or former employee.

C. The Contractor shall furnish the Owner evidence of its firm's medical surveillance program required under 29 CFR 1910.1001, and 29 CFR 1926.1101.

1.13 REGULATIONS AND STANDARDS

Regulatory compliance includes but is not necessarily limited to applicable requirements set forth by:

A. Federal Regulations:

1. 29 CFR 1910 and 1926 – Construction and General Industry Standards
2. 29 CFR 1910.1001, "Asbestos" (OSHA)
3. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
4. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
5. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
6. 29 CFR 1910.146, ―Permit Required Confined Spaces‖ (OSHA)
7. 29 CFR 1926, "Construction Industry" (OSHA)
8. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
9. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
10. 40 CFR 61, Subpart A, "General Provisions" (EPA)
11. 40 CFR 61, Subpart M, "National Emission Standards for Hazardous Air Pollutants (NESHAP)" (EPA)
12. 40 CFR 763 Subpart E, ―Asbestos in Schools Regulations‖ (EPA)
13. 49 CFR 171-172, Transportation Standards (DOT)

B. Connecticut Regulations: State requirements which govern asbestos abatement work and hauling and disposal of asbestos waste materials include but are not necessarily limited to the following:

1. Connecticut Department of Environmental Protection (Solid Waste Management Regulations).

2. Connecticut Department of Public Health (CT-DPH) regulations outlined in Section 19a332a-1 through 19a-332a-16 ―Standards for Asbestos Abatement‖

3. CT-DPH regulations outlined in Section 20-440-1 through 20-440-9 and 20-441 ―Licensure and Training Requirements for Persons Engaged in Asbestos Abatement and Consulting Services

4. Connecticut Department of Labor (CT-DOL)

5. Connecticut Department of Transportation (DOT)

C. Local Regulations: Local agencies which may govern or have certain requirements regarding asbestos abatement work or hauling and disposal of asbestos waste materials include but are not necessarily limited to the following:

1. Building Department

2. Health Department

3. Fire Department

D. Standards and Guidance Documents:

1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection

2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems

3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)

4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

1.14 EXEMPTIONS

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

B. Any modifications from the standard work practices identified in the CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-16, Sections 20-440-1 to 20440-9, Section 20-441 and Section 19a-332e-1 to 19a-332e-2, must be requested in writing, and approved in writing from the CTDPH.

1.15 FINAL AIR CLEARANCE

A. Following the completion of the encapsulation phase of the work, the Consultant shall collect final air clearance samples inside the work area per AHERA regulation 40 CFR Part 763, if necessary and in compliance with CTDPH regulations. If no waiver is obtained, the Owner of the facility shall be responsible for payment of the sampling and analysis of the initial final air clearance samples only. The Contractor shall be responsible for payment of all costs associated with the collection and analysis of additional final air clearance samples if the first set of samples fail to satisfy the clearance criteria.

1.16 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

A. The Contractor shall make the following notifications, and provide the submittals to the following agencies prior to the commencement of removal work. This notification is required ten (10) calendar days prior to the start of the abatement project:

1. Connecticut Department of Energy and Environmental Protection (CTDEEP) Health Services and Solid Waste Management Unit 79 Elm St. Hartford, CT 06106 (Only if asbestos waste is disposed of in Connecticut) 2. Connecticut Department of Public Health 410 Capital Avenue MS #51 AIR P.O. Box 340308 Hartford, CT 06134

B. The minimum information included in the notification to these agencies 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
8. If landfill opens in Connecticut to accept ACM waste, Consultant will notify CTDEEP prior to utilizing said landfill.

1.17 WORK SITE SAFETY PLAN

A. The Contractor 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 occupants of the building in the event of a fire or other emergency requiring evacuation of the building.

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

1.18 INDEPENDENT AIR SAMPLING AND ASBESTOS ABATEMENT MONITORING

A. This section describes independent air sampling work being performed on behalf of the Owner. This work is not in the Contract Sum. This section describes air monitoring carried out by the Owner's Consultant, Milone and MacBroom, Inc. to verify that the building beyond the work area and the remains uncontaminated. Personal air monitoring required by OSHA is work to be performed by the Contractor and is within the Contract Sum.

B. The purpose of the Owner's Consultant's air monitoring is to detect faults in the work are isolation such as:

1. Contamination of the building outside of the work area by airborne asbestos fibers

2. Failure of filtration or rupture in the differential pressure system

3. Contamination of air outside the building envelope by airborne asbestos fibers. Should any of the above occur the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Consultant, SLR.

C. The Owner's Consultant, SLR, will monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations, which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

D. To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Consultant’s Connecticut Licensed Project Monitor will sample and analyze air in accordance with clearance air sampling requirements.

E. The Owner's Consultant, SLR, will perform on-site monitoring throughout the course of the project, as follows:

1. All work procedures shall be continuously monitored by the Consultant to assure that areas outside the designated work locations in the buildings will not be contaminated.

2. Prior to work on any given day, the Contractor's designated "competent person" shall discuss the day's work schedule with the Consultant to 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 of the building or the employees. This includes a visual survey of the work area and the decontamination enclosure systems.

1.19 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

A. The Contractor shall independently retain an air sampling professional to monitor airborne asbestos concentrations in the workers' breathing zone and to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001 and 1926.1101.

B. The Contractor's air sampling professional shall document all air sampling results and provide a report to the Consultant within 48 hours after sample collection.

C. All air sampling shall be conducted in accordance with methods described in OSHA Standards 29 CFR 1910.1001 and 1926.1101 and the OSHA Respiratory Protection Standard 29 CFR 1910.134.

D. A minimum of 20% of all workers in each working category (i.e., gross removal, final clearance, etc.) must be monitored each day of asbestos removal activities.

E. Phase Contrast Microscopy may be used to analyze personal air samples. The Contractor shall arrange and pay for all costs of the testing. Laboratories used shall be currently enrolled in the American Industrial Hygiene Association Proficiency Analytical Testing Program or an equivalent recognized program.

1.20 PROPER WORKER PROTECTION

A. This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

B. All workers are to be accredited as Abatement Workers as required by the AHERA regulation 40 CFR 763 Appendix C to Subpart E, February 3, 1994.

C. The Contractor is required to be certified and accredited as required by the State of Connecticut Department of Health Services.

D. In accordance with 29 CFR 1926, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include but is not limited to the following:

1. Methods of recognizing asbestos
2. Health effects associated with asbestos
3. Relationship between smoking and asbestos in producing lung cancer
4. Nature of operations that could result in exposure to asbestos
5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
    a. Engineering controls
    b. Work Practices
    c. Respirators
    d. Housekeeping procedures
    e. Hygiene facilities
    f. Protective clothing
    g. Decontamination procedures
    h. Emergency procedures
        1) Waste disposal procedures
6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134
7. Appropriate work practices for the work
8. Requirements of medical surveillance program
9. Review of 29 CFR 1926
10. Pressure Differential Systems
11. Work practices including hands on or on-job training
12. Personal Decontamination procedures
13. Air monitoring, personal and area

E. The Contractor shall provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 fibers/cubic centimeter (f/cc) or greater for an 8-hour Time Weighted Average (TWA). In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the Work Areas for any reason. Examination shall, at a minimum, meet OSHA requirements as set forth in 29 CFR 1926. In addition, the examination shall provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

F. Submit the following to the Consultant for review. The Contractor shall not start work until these submittals are returned with Consultant action stamp indicating that they are approved.

1. Submit copies of certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the AHERA Regulation 40 CFR 763 Appendix C to Subpart E, February 3, 1994.

2. Submit evidence that the Contractor is certified to perform asbestos abatement work by the State of Connecticut Department of Public Health services.

3. Submit an original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.

4. Submit documents verifying that each worker has had a medical examination within the last 12 months as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:

    a. Name and Social Security Number

    b. Physicians Written Opinion from examining physician including at a minimum the following:

        i. Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.

        ii. Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.

        iii. Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

        iv. Copy of information that was provided to physician in compliance with 29 CFR 1926

        v. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.

5. Effective June 4, 2000, submit copies of certificates for the site supervisor and the workers issued by CTDPH.

G. Submit certification signed by an officer of the abatement-contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.

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

1. Non-essential personnel are prohibited from entering the area
2. 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
3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated
4. 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 leaving the enclosure system must be immediately transported off-site or immediately placed in locked, posted temporary storage on-site, and removed within 24 hours of the project conclusion.
5. 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.

1.21 ALTERNATE WORK PRACTICES

A. The Contractor and/or Consultant may obtain services of a CTDPH certified asbestos project designer and submit application for variances to the CTDPH, as applicable for any alterations, modifications or non-conforming methods intended of asbestos removal. Methods requiring variances include but are not necessarily limited to glove-bagging, use of tent procedures, remote decontamination units, absolving the requirement of clearance re-occupancy air testing, etc. The alternative procedures shall be submitted in writing and hand delivered or post marked at least ten (10) days before the project start date. CT-DPH may approve an alternative procedure for an asbestos abatement project with certain conditions that would provide equivalent or a greater measure of asbestos emission control than the conventional work practices. The alternate work practice request form shall be signed and sealed by a Licensed Designer. Any fees associated with the application shall be paid by the Contractor. All alternative work practices must be approved and accepted by SLR’s project designer, regardless if they have been approved by CTDPH.

1.22 POST-PROJECT CLOSEOUT

A. The Contractor shall provide all required documentation as required by this specification once his/her work is complete, final clearances passed and asbestos waste disposed of. This should include but not be limited to: bound copy of the daily log containing log of daily work activities, all supervisor and worker certificates of training and Connecticut licenses, certificates of insurance, daily sign in sheets, containment entry/exit logs, copy of recording manometer charts, waste shipment records, personal air monitoring laboratory reports and chain-of-custody documentation, and project completion certificate. Final payment shall not be made to the Contractor until all required documentation is submitted and verified.

PART 2 - PRODUCTS

2.01 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 the job site with factory label indicating 4 or 6 mil.

D. Polyethylene disposable bags shall be six (6) mil with pertinent pre-printed label. Tie wraps 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. Surfactant (wetting agent), shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester in a 0.16 percent solution 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. Removal encapsulant shall be non-flammable factory prepared penetrating chemical encapsulant found acceptable to Consultant. Usage shall be in accordance with manufacturer's printed technical data.

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

I. Impermeable containers are to be used to received 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.

J. Labels and signs, as required by OSHA Standard 29 CFR 1926.1101, will be used.

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

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

2.02 TOOLS AND EQUIPMENT

A. The Contractor shall provide all tools and equipment necessary for asbestos removal, encapsulation and enclosure.

B. The Contractor's air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The Contractor shall have available sufficient inventory or dated purchase orders 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 Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work

affecting the building electrical power system shall be performed by a State of Connecticut licensed electrician.

E. The Contractor shall have available shower stalls and plumbing to support same to include sufficient hose length and drain system or an acceptable alternate.

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 enclosure with respect to outside area. Equipment shall be checked for proper operation by smoke tubes or 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 the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

H. The Contractor will have reserve units so that the station system will operate continuously

2.03 RESPIRATORY PROTECTION

A. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), and the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

B. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual. Fit-test records shall be maintained on-site for each employee.

C. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators (PAPR) are the minimum allowable respiratory protection permitted to be utilized during gross removal operations. The Contractor shall use supplied air respirator for confined space requirements. PAPR’s are the minimal respiratory protection required for all thermal system insulation and surfacing asbestos abatement.

D. No respirators shall be issued to personnel without such personnel participating in a respirator training program.

E. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134 and 29 CFR 1926.1101.

F. A storage area for respirators shall be provided by the Contractor in the clean room side of the personnel decontamination enclosure where they will be kept in a clean environment.

G. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the Work day. Filters will be removed and discarded during the decontamination process. Filters cannot be reused. Filters must be changed if breathing becomes difficult.

H. Filters used with negative pressure air purifying respirators shall not be used any longer than one eight (8) hour work day.

I. Any authorized visitor, worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the project site and not be permitted to return.

J. The Contractor shall have at least two (2) Powered Air Purifying Respirators stored on-site designated for authorized visitors use. Appropriate respirator filters for authorized visitors shall be made available by the Contractor.

K. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134, and 29 CFR 1926.1101. Provide respirator training and fit-testing.

2.04 PROTECTIVE CLOTHING

A. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, gloves and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber for comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.

B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.

C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.

D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

PART 3 - EXECUTION

3.01 PRE-ABATEMENT MEETING

A. At least one week prior to the start of work a Pre-Construction Meeting will be scheduled and must be attended by the Contractor and any Sub-Contractors. The assigned Contractor Site Supervisor is also required to attend this meeting.

B. The Contractor shall present a detailed project schedule and project submittals at the PreConstruction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and Consultant will inform the Contractor of any scheduling adjustments for this project.

C. Following the Pre-Construction Meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.02 WORK AREA PREPARATION

A. Where necessary, shut down electrical power, including receptacles and light fixtures. Under no circumstances during the decontamination procedures will lighting fixtures be permitted to be operating when the spraying of amended water may contact the fixture. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a State of Connecticut licensed electrician.

B. 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. During the work, vents within the work area shall be of a "critical" barrier (as explained below) with duct tape and polyethylene sheeting.

C. The Contractor shall be responsible for removing furniture from the work areas. The Contractor shall pre-clean moveable objects within the proposed work areas using HEPA vacuum equipment and/or wet cleaning methods as appropriate and remove such objects from work areas to a temporary location. For example, cabinets to gain access to floor tile and associated mastic.

D. Seal off all openings, including, but not limited to, windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with polyethylene sheeting a minimum of six (6) mils thick, sealed with duct tape. This includes doorways and corridors that will not be used for passage during work areas and occupied areas.

E. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with a minimum six (6) mil plastic sheeting sealed with duct tape.

F. Clean the proposed work areas using HEPA vacuum equipment or 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.

G. After HEPA vacuum cleaning, cover fixed walls with two (2) layers of four (4) mil polyethylene sheeting to the floor level. Where fixed walls are not used, two layers of six (6) mil polyethylene sheeting will be applied to a rigid framework of wood, metal, or PVC. Where flooring/mastic is not being abated, cover the floor with two (2) layers of six-mil polyethylene sheeting. All overlaps shall be sealed with tape or spray adhesive.

H. Maintain emergency and fire exits from the work areas, or establish alternate exits satisfactory to fire officials.

I. Clean and remove ceiling mounted objects, such as lights and other items not sealed off, which interfere with asbestos abatement. Use hand-held amended water spraying or HEPA vacuuming equipment during fixture removal to reduce settled fiber dispersal.

J. Create pressure differential between work areas and uncontaminated areas by the use of acceptable negative air pressure equipment sufficient to provide four (4) air changes per hour and create negative pressure of -0.02 inches of water within enclosure with respect to outside area as measured on a water gauge.

3.03 DECONTAMINATION SYSTEM

A. The following requirements shall be followed for the worker decontamination unit:

1. At all asbestos abatement projects, work areas shall be equipped with decontamination facilities consisting of: a clean room, a shower room, and an equipment room attached to each containment.

2. The decontamination enclosure system chambers shall be constructed to meet the criteria of the Specification. The decontamination enclosure shall be installed watertight to prevent water leaks. The interior shall be lined with two layers of 6-mil fire-retardant plastic sheeting, with a minimum overlap of 16 inches at seams and sealed (airtight) by tape and adhesive. The interior floor shall be sheathed with (2) layers of reinforced fire retardant plastic sheeting with a minimum overlap on the wall of sixteen (16) inches. The contractor shall ensure compliance with local building codes and other regulations governing temporary structures.

3. Curtained Doorways: Three overlapping sheets of 6-mil polyethylene shall be placed over a framed doorway and secured along the top of the doorway. Secure the vertical edge of the outer sheets along one vertical side of the doorway and the vertical edge of the center sheet along the opposite vertical side of the doorway. The sheets shall be weighted so that they close quickly after being released.

4. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart.

    a. Clean Room: In this room, persons remove and leave all street clothes and put on clean disposable coveralls. Approved respiratory protection equipment is stored in this area. The floor of the clean room must be kept dry at all times. At the end of each shift, the room must be cleaned using wet rags. Also, a lockable door may be installed. No asbestos-containing materials are allowed in this room. The clean room shall be equipped with suitable hooks, lockers, shelves, etc. for workers to store personal articles and clothing. THIS IS NOT A CONTAMINATED AREA.

    b. Shower Room: Provide a completely watertight operational shower to be used by cleanly dressed workers heading for the Work area from the clean room or for showering workers headed out of the Work Area after dressing in the Equipment Room. Shower must be constructed so that water leakage is minimized. The shower shall have one shower per six full shift abatement people, calculated on the basis of the largest shift. Any leaking water must be cleaned immediately. Showers must be equipped with hot and cold running water, soap and sufficient disposable towels for the number of workers at the job site. Arrange water shut off and drain pump operation controls, so that a single individual can shower without assistance from either inside or outside the Work Area. THIS IS A CONTAMINATED AREA. Pump wastewater into a polyethylene lined 55-gallon drum located in the Work Area to be added to the asbestos waste. If the water is allowed by the work treatment workers to be pumped into a drain, provide 20 micron and 5 micron waste water filters in line to drain. Change filters at a minimum of once a day. Locate filters inside the shower unit, so that the shower pan catches the water lost during filter change.

    c. Equipment Room: Work equipment, footwear, and all other contaminated work clothing are to be left here upon exiting Work Area. A walk-off pan filled with water shall be located in the work area just outside the equipment room for workers to clean foot coverings while exiting the work area. This is a change and transit area for workers. Provide a drop cloth layer of sheet plastic on the floor of the Equipment Room for every shift change. Roll drop cloth layer in upon itself at the end of each shift and dispose of as contaminated waste. THIS IS A CONTAMINATED AREA.

Each room shall be separated from the other and from the work area by airlocks such as will prevent the free passage of air or asbestos fibers and shall be accessible through doorways protected with three (3) overlapping 6 mil polyethylene sheets which shall be weighed, so as to fall into place when people pass through the area. The shower room shall be contiguous to the clean room and equipment room. All personnel entering or leaving the work area shall pass through the shower room. The number of showers provided shall satisfy the requirements of OSHA 29 CFR 1910.141. Hot and cold water shall be supplied to the showers. The equipment room (dirty room) shall be situated between the shower room and the work area and separated from both by means of suitable barriers or overlapping flaps such as will prevent the free passage of air or asbestos fibers.

Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment, which may fall, and to safely stretcher or carry an injured worker from the Site without destruction of the chamber or unnecessary risk to the integrity of the work area. Such doors must be at least four (4) feet wide, and the distance between sets of doors must be at least four (4) feet.

5. No person or equipment shall leave the asbestos abatement project work area unless first decontaminated by showering, wet washing or HEPA vacuuming to remove all asbestos debris. No asbestos contaminated materials or persons shall enter the clean room.

6. Where feasible, decontamination systems shall abut the work area. In situations where it is not possible, due to unusual conditions, to establish decontamination systems contiguous to the work area, personnel shall be directed to remove visible asbestos debris from their persons by HEPA-filtered vacuuming prior to donning clean disposable coveralls while still in the work area, and proceeding directly to a remote decontamination system to shower and change clothes to follow work area exit procedures.

7. In specific situations where the asbestos contractor determines that it is not feasible to establish a contiguous decontamination system at a work site, the asbestos contractor shall utilize a remote decontamination system if approved by SLR. Such systems must be operated in conformance with 29 CFR 1926.1101, Appendix F.

B. Remote Decontamination Facility: For exterior work on the roof, glove bag or tent procedures, when full containment enclosure is not feasible, the Contractor shall provide remote personnel decontamination enclosure system if approved by the Consultant - SLR.

C. Occupied areas and/or building space not within the work areas shall be separated from asbestos abatement work areas by means of airtight barriers.

D. Construct the decontamination system with wood or metal framing, 3/8" sheathing and cover both sides with a double layer of six (6) mil polyethylene sheeting, spray glued or taped at the joints. Caulk joints watertight at floor, walls, and ceilings.

E. The Contractor and the Consultant shall visually inspect barrier several times daily to assure effective seal and the Contractor shall repair defects immediately

F. Waste/Equipment Decontamination Enclosure System: This system is located adjacent to the work area. The equipment decontamination enclosure system, consisting of two totally enclosed spaces, shall be constructed as follows:

1. Equipment Washroom: An equipment washroom shall have two air locks: one adjacent to the work area and one common air lock which separate it from the holding area. The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the work area, prior to moving to the washroom.

2. Holding Area: A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the work area.

3. Remote Decontamination Facility: For exterior work, glove bag or tent procedures, when full containment enclosure is not required, the Contractor shall provide remote Waste/Equipment decontamination enclosure system as specified.

3.04 ABATEMENT REMOVAL PROCEDURES

A. Regulatory compliance will include, but is not necessarily limited to, applicable requirements set forth by the Federal Environmental Protection Agency (EPA), Connecticut Departments of Public Health (CTDPH), Connecticut Department of Energy & Environmental Protection (CTDEEP), and Farmington/local Health and Building Departments.

B. The following procedures shall be followed while performing the abatement activities:

1. No asbestos abatement work, including preparation, shall be performed or continued without having proper notification and a certified supervisor at the work area. 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 the project.

2. Abatement work will not commence until authorized by the Consultant.

3. Provide and display danger signs at every entrance to the work areas in clearly visible locations indicating that asbestos removal work is being conducted and unauthorized and not protected persons should not enter.

   Signs must use the following legend:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

Signs shall be posted which meet the specifications set forth in 29 CFR 1926.1101 at all approaches to the work area. Signs shall be posted a sufficient distance from the work area to permit a person to read the sign and take precautionary measures to avoid exposure to asbestos.

4. The worker decontamination enclosure system shall be installed or constructed prior to plasticizing the work area or before disturbing ACM. The waste decontamination enclosure system shall be installed or constructed prior to commencement of gross removal work.

5. All asbestos handlers shall wear disposable suits, including gloves, hood and footwear, and appropriate respiratory equipment, after removing street clothes in the clean room.

6. Abatement of asbestos-containing materials shall be done by wet methods only.

7. ACM shall be sprayed with amended water in sufficient frequency and quantity for enhanced penetration. Sufficient time shall be allowed for penetration to occur prior to removal action or other disturbance-taking place. Dry removal of asbestos materials is prohibited.

8. In order to maintain indoor asbestos concentrations to the minimum, the wet asbestos must be removed in manageable sections. Material drop shall not exceed eight (8) feet. For heights up to 15 feet, provide inclined chutes or scaffolding to intercept drop.

9. Remove asbestos containing materials as appropriate by standard methods. Fill disposal containers as removal proceeds; seal filled containers and clean containers before removal to equipment decontamination system. Wet clean each container thoroughly, double bag and apply caution label. Ensure that workers do not exit the work area thorough the equipment decontamination enclosure.

10. After completion of stripping work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped, and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are not permitted). During this work, the surfaces being cleaned shall be kept wet.

11. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris. During cleanup, utilize brooms, rubber dustpan, and rubber squeegees to minimize damage to floor covering.

12. Retrieve all free water in contaminated areas and place in plastic lined leak-tight drums.

13. 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 equipment decontamination enclosure at an appropriate time in the cleaning sequence. All asbestos waste in 6-mil polyethylene disposal bags shall be double bagged in the equipment decontamination enclosure before removal from the Site.

14. At any time during asbestos removal, should the Consultant/SLR suspect contamination of areas outside the work area(s), he/she shall cause all abatement work to stop until the Contractor takes steps to decontaminate these areas and eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.

15. After completion of the initial final cleaning procedure including removal of the inner layers of polyethylene sheeting, but prior to encapsulation, a pre-sealant inspection shall be conducted by the Consultant. The pre-sealant inspection shall verify that ACM and residual dust has been removed from the work area.

16. After the work area has been inspected by the Engineer and rendered free of visible debris, a thin coat of a pigmented (non-transparent) encapsulating agent shall be applied to all surfaces in the work area from which ACM was removed, to lockdown nonviable fibers.

17. Removal of asbestos containing materials shall be done under negative pressure containment. All OSHA Class I, Class III, and interior Class II asbestos abatement projects shall employ HEPA negative air pressure equipment ventilation. The negative air pressure equipment shall operate continuously, twenty-four (24) hours a day, from startup of negative air pressure equipment, through the cleanup operations. A negative air pressure, relative to areas outside of the enclosure, shall be maintained at all times in the regulated abatement work area during the asbestos abatement project to ensure that contaminated air in the regulated abatement work area does not escape back to an uncontaminated area. A manometer shall be used to document the pressure differential for all OSHA Class I Large and Small size asbestos project regulated abatement work areas. A minimum of –0.02 column inches of water pressure differential, relative to pressure outside the regulated abatement work area, shall be maintained within the regulated abatement work area, as evidenced by manometric measurements.

3.05 CONSULTANT

A. The Owner has retained SLR International Corporation. (SLR) as the Hazardous Materials Consultant for the purpose of project design, construction administration, and project monitoring during Asbestos Abatement. Mr. Ryan Rouillard (License #000307) of SLR is the DPH-approved Asbestos Project Designer for this project. The Consultant will represent the Owner in all tasks of the abatement project at the discretion of the Owner. The Asbestos Abatement Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the abatement, submission of data, and daily field punch list items.

3.06 CONSULTANT'S RESPONSIBILITIES

A. Air sampling shall be conducted by the Consultant to ascertain the integrity of controls that protect the building from asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Consultant's air sampling professional shall collect and analyze air samples during two time periods:

1. Abatement Period: If required, the Consultant's project monitor shall collect samples on a daily basis during the work period. A sufficient number of area samples shall be taken outside of the work area, at the exhaust of the negative pressure system, and outside of the building to judge the degree of cleanliness or contamination of the building during removal. Additional samples may be taken inside the work area and decontamination enclosure system, at the discretion of the project monitor.

2. Post-Abatement Period: If required, the Consultant's project monitor shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion, as established by the project monitor, has been met. Five (5) samples shall be collected inside the work area utilizing aggressive methods to comply with the State of Connecticut Department of Public Health Standards for Asbestos Abatement, sections 19a-332a-12, and 19a-332a-13. Analysis of the samples to determine airborne concentrations of asbestos shall be conducted by Transmission Electron Microscopy (TEM) method with an average limit of 70.0 structures per square millimeter of filter surface or by Phase Contrast Microscopy (PCM) with a limit of 0.01 fibers per cubic centimeters of air in accordance with the above Connecticut regulation sections.

C. The Consultant's project monitor shall provide continual evaluation of the air quality of the building during removal, using his/her best professional judgment in respect to the State of Connecticut Department of Public Health (CTDPH) guideline of 0.010 fibers/cc and the background air quality established during the pre-abatement period.

D. If the project monitor determines that the building air quality has become contaminated from the project, he/she shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean up procedure. The Contractor shall conduct a thorough cleanup of the areas of the building designated by the Consultant. No further removal work can take place until the project monitor has assessed that the building air has been decontaminated.

E. Pre-abatement and abatement air samples shall be collected as required to obtain a volume of 1,200 liters. Samples shall be analyzed by Phase Contrast Microscopy (PCM) methodology using the NIOSH 7400 protocol.

3.07 CONSULTANT'S INSPECTION RESPONSIBILITIES

A. The Consultant shall conduct inspection 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 abatement Contractor.

B. The Consultant 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 abatement Contractor. The Consultant shall be informed 12 hours prior to the time the inspection is needed. If, during the course of the pre-commencement inspection, deficiencies are found, the Contractor 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 Consultant. During the course of the work inspections, the Consultant shall observe the Contractor's removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the abatement Contractor of specific remedial activities if deficiencies are noted.

3. Pre-sealant Inspection: The Consultant, upon the request of the abatement Contractor, shall conduct a pre-sealant inspection. The Consultant shall be informed 12 hours prior the time that the inspection is needed. The pre-sealant inspection shall be conducted after completion of the initial cleaning procedures, but prior to 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 Consultant identifies residual dust or debris, the Contractor shall comply with the request of the Consultant in order to render the area "dust free".

4. Final Visual Inspection: The Consultant, upon request of the abatement Contractor, shall conduct a final visual inspection. Following the removal of the inner layer of polyethylene sheeting and prior to final air clearance, the Consultant shall conduct a final visual inspection inside the work area. If residual dust or debris is identified during the course of the final inspection, the Contractor shall comply with the request of the Consultant in order to render the area "dust free".

3.08 CLEARANCE AIR TESTING

A. After the visual inspection is completed and all surfaces in the abatement area have dried, final air clearance sampling shall be performed by the Consultant. Aggressive air monitoring will be used. Selection of location and samples shall be the responsibility of the Consultant. Air monitoring volumes shall be sufficient to provide a detection limit of 0.010 f/cm' using NIOSH-approved method for PCM analysis. For air clearance by Transmission Electron Microscopy, air-monitoring volumes shall be sufficient to provide a detection limit of 0.005 f/cm3 using the AHERA Level II Methods.

B. Areas which do not comply with the Standard for Cleaning for Initial Clearance shall continue to be cleaned by and at the Contractor's expense until the specified Standard of Cleaning is achieved as evidenced by results of air testing as previously specified.

3.09 ASBESTOS WASTE DISPOSAL

A. The Contractor shall package, label, and remove all asbestos waste from the work area in accordance with CTDEEP regulations, all other applicable regulations, and as specified below. Packaging shall be accomplished in a manner that minimizes waste volume, but insures waste containers shall not tear or break. All waste shall be transported in leak tight containers.

B. Asbestos wastes may include building materials, insulation, disposable clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, contractor equipment, or other materials designated by state or local authorities which have been potentially contaminated with asbestos and have not been fully cleaned.

C. Waste Labeling

1. Warning labels, having waterproof print and permanent adhesive in compliance with OSHA, EPA and CTDEEP/DOT requirements, shall be affixed to or printed on the sides of all waste bags or transfer containers.

   Warning labels shall be conspicuous and legible, and contain the following words:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

2. In compliance with NESHAP, 40 CFR, Part 61.150, all waste containers or bags shall be labeled with the following generator information:

   a. Name of waste generator

   b. Location of where waste was generated

D. Wetting of Waste: A fine water spray shall be used to keep the top layers of waste in containers thoroughly wet at all times. When a waste bag is full, air within the bags shall be evacuated with a HEPA equipped vacuum and be securely sealed with tape or other secure fastener.

E. Use and Decontamination of Fiber Drums: The Contractor's use and decontamination of fiber drums shall be in accordance with CTDPH, EPA and DOT requirements. The drums shall be lined with a minimum of two layers of 6-mil asbestos waste bags. The waste will be appropriately labeled and sealed. The drums shall be sealed with an airtight lid and shall be decontaminated and/or additionally bagged if the drums are filled inside the containment and visible debris/contamination is observed on the exterior of the drums. All waste shall be labeled as

previously described. The drums and waste will be re-containerized should their integrity be compromised and/or liquid is visibly passing through or staining the container.

F. Waste Container Storage: The container used for the storage of bagged contaminated waste shall be an enclosed dumpster. The dumpster shall have a solid metal roof and a solid metal door with padlock. At a minimum, line the cargo area with two layers of a 6-mil polyethylene sheeting to prevent contamination from damaged or leaking containers. Floor sheeting shall be installed first and shall extend up the sidewalls 24 inches minimum. Wall sheeting shall be overlapped and taped securely into place. No un-bagged contaminated waste or non-asbestos waste shall be stored in these dumpsters. Ensure that bags placed in dumpsters are undamaged. Warning signs shall be posted on the dumpster in accordance with Sections 29 CFR 1926.1101 of the OSHA regulations.

G. Waste Removal Scheduling: All waste containers shall be decontaminated and removed from the Site before final cleanup is started and isolation barriers are taken down.

H. Waste Transportation and Disposal

1. It is the responsibility of the Contractor to determine and insure that the Contractor and his/her subcontractor are complying with: 1) current waste handling regulations; and 2) the current regulations for transporting and disposing waste at the ultimate disposal landfill. The Contractor must comply fully with these regulations, and with all U.S. Department of Transportation, State, local, and EPA requirements.

2. The Contractor's waste hauler and disposal contractor shall maintain a valid hazardous waste transporter's permit and identification number; and obtain complete, and fully comply with any other local hazardous waste manifesting requirements.

3. Exercise care before and during transport to ensure that no unauthorized persons have access to the containerized asbestos waste.

4. Do not transport asbestos-containing wastes (ACWs) on open trucks. Treat and dispose of drums that have been contaminated as asbestos-containing waste.

5. A copy of ACW manifest forms shall be sent to the Owner after each disposal is completed and all required data and signatures have been inserted.

6. The Contractor shall return the original Disposal Certificate (landfill receipt) to the Owner within 10 working days of waste shipment from the Site.

END OF SECTION 02 82 13

SECTION 02 83 13 - LEAD PAINT AWARENESS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

B. Refer to all drawings and/or 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.

C. Sections containing requirements related to this Section include, but are not limited to:

1. Section 028200 – Selective Hazardous Materials Abatement Demolition
2. Section 028213 – Asbestos Abatement
3. Section 028416 – Universal Waste Removal/Recycling
4. Section 028432 – PCBs Greater than 50 PPM Abatement
5. Performance-Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials (as applicable), and Paints

1.02 SUMMARY OF WORK

A. Work of this Section includes, requirements for worker protection and waste disposal related to the demolition work involving components and surfaces containing lead at the residences (2, 4, 10, 14 Mill Lane and associated garages and sheds, and the 99 Garden Street Garage) planned for demolition to allow for the Community Life Building. All materials should be considered to contain lead. The plaster wall paints, exterior siding/trim beneath vinyl siding facades, and other interior/exterior materials were found to contain elevated levels of lead (see Appendix A for the XRF report detailing findings of the survey). The contractor will be responsible, and SLR may also perform, TCLP sampling on all debris/waste to insure proper disposal.

B. The procedures referenced herein shall be utilized during required demolition work specified elsewhere in the Architect's Specification (as applicable) that might impact lead.

C. The removal and demolition impacting lead based paint may result in dust and debris exposing workers to levels of lead above the OSHA Action Level. Worker protection, training, and

engineering controls referenced herein shall be strictly adhered to, until completion of exposure assessment with results indicating exposures below the "Action Level". This section does not involve lead abatement, but identified worker protection requirements for trades involved in the demolition and disposal procedures if lead is involved in the waste stream.

D. The removal and demolition impacting lead based paint and other paint may result in dust and debris exposing adjacent neighbors to levels of lead. The building abuts other properties, some of which appear to be residential. This section does not involve lead abatement, but the contractor must be aware to not contaminate adjacent properties with lead, asbestos, PCB and other debris and/or dust. The contractor is responsible for taking pre-abatement/demolition soil and other samples from adjacent properties and will he held responsible for any abatement/remediation should the adjacent properties become contaminated. All costs associated with contamination and subsequent abatement/remediation will be the contractors responsibility, not the building owner.

1.03 DEFINITIONS

A. The following definitions relative to lead paint as used in this Section are offered:

1. Action Level (AL): The allowable employee exposure, without regard to use of respiratory protection, to an airborne concentration of lead over an eight (8) hour time weighted average (TWA), as defined by OSHA. The current action level is thirty micrograms per cubic meter of air (30 ug/m3).

2. Area Monitoring: The sampling of lead concentrations, which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

3. Biological Monitoring: The analysis of a person's blood and/or urine, to determine the level of lead concentration in the body.

4. Change Room: An area provided with separate facilities for clean protective work clothing and equipment and for street clothes, which prevents cross-contamination.

5. Competent Person: A person employed by the Contractor 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 as defined by OSHA.

6. Exposure Assessment: An assessment conducted by an employer to determine if any employee may be exposed to lead at or above the action level.

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

8. Lead: Refers to metallic lead, inorganic lead compounds and organic lead soaps. Excluded from this definition are other organic lead compounds.

9. Lead Work Area: An area enclosed in a manner to prevent the spread of lead dust, paint chips, or debris resulting from lead-containing paint disturbance.

10. Lead Paint: Refers to paints, glazes and other surface coverings containing a toxic level of lead.

11. Permissible Exposure Limit (PEL): The maximum allowable limit of exposure to an airborne concentration of lead over an eight (8) hour time weighted average (TWA), as defined by OSHA. The current PEL is fifty micrograms per cubic meter of air (50 ug/m3). Extended workdays lower the PEL by the formula: PEL equals 400 divided by the number of hours of work.

12. Personal Monitoring: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62 and 29 CFR 1910.1025. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a sphere with a radius of 18 inches and centered at the nose or mouth of an employee.

13. Resource Conservation Recovery Act (RCRA): RCRA establishes regulatory levels of hazardous chemicals. There are eight (8) heavy metals of concern for disposal: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Six (6) of the metals are typically found in paints, excluding selenium and silver.

14. Toxic Level Of Lead: A level of lead, when present in dried paint or plaster, contains more than 0.50% lead by dry weight as measured by atomic absorption spectrophotometry (AAS) or 1.0 mg/cm' as measured by on-site testing utilizing an x-ray fluorescence analyzer. (Term is specific to State of CT regulations and HUD guidelines only)

15. Toxicity Characteristic Leachate Procedure (TCLP): The U.S. Environmental Protection Agency (USEPA) required sample preparation and analysis for determining the hazard characteristics of a waste material.

1.04 REGULATIONS AND STANDARDS

A. The following regulations, standards, and ordinances of federal, state, and local agencies are applicable and made a part of this specification by reference:

1. American National Standards Institute (ANSI) ANSI 288.2 - 1980 Respiratory Protection

2. Code of Federal Regulation (CFR)

   a. 29 CFR 1910.134 - Respiratory Protection

   b. 29 CFR 1910.1025 - Lead

   c. 29 CFR 1926.62 - Lead in Construction Interim Final Rule

   d. 29 CFR 1910.1200 - Hazard Communication

   e. 29 CFR 1926.59 - Hazard Communication in Construction

   f. 29 CFR 1926.55 - Gases, Vapors, Fumes, Dusts, and Mists

g. 29 CFR 1926.57 – Ventilation

h. 40 CFR 260 - Hazardous Waste Management Systems: General

1) 40 CFR 261 - Identification and Listing of Hazardous Waste

2) 40 CFR 262 - Generators of Hazardous Waste

3) 40 CFR 263 - Transporters of Hazardous Waste

4) 40 CFR 264 - Owner and Operators of Hazardous Waste Treatment, Storage, and

5) Disposal Facilities

i. 40 CFR 265 - Interim Statutes for Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

j. 40 CFR 268 - Lead Disposal Restrictions

k. 40 CFR 172 - Hazardous Materials Tables and Communication Regulations

l. 40 CFR 178 - Shipping Container Specifications

m. 40 CFR 270 and 124 - Hazardous Waste Permits

3. Underwriters Laboratories, Inc. (UL) UL586 - 1990 High Efficiency Particulate Air Filter Units

1.05 QUALITY ASSURANCE

A. Hazard Communication Program

The Contractor shall establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

B. Compliance Plan (Site Specific)

The contractor shall establish a written compliance plan, which is specific to the project site, to include the following:

1. A description of work activity involving lead including equipment used, material included, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.

2. Methods of engineering controls to be used to control lead exposure.

3. The proposed technology the Contractor will implement in meeting the PEL.

4. Air monitoring data documenting the source of lead emissions.

5. A detailed schedule for implementing the program, including documentation of appropriate supply of equipment, etc.

6. Proposed work practice which establishes proper protective work clothing, housekeeping methods, hygiene facilities, and practices.

7. Worker rotation schedule, if proposed, to reduce TWA.

8. A description of methods for informing workers of potential lead exposure.

C. Hazardous Waste Management

The Contractor shall establish a Hazardous Waste Management Plan, which shall comply with applicable regulations and address the following:

1. Identification of hazardous wastes

2. Estimated quantity of waste to be disposed of

3. Names and qualifications of each sub-contractor that will be transporting, storing, treating, and disposing of wastes

4. Disposal facility location and 24 hour point of contact

5. Establish EPA state hazardous waste and identification numbers if applicable

6. Names and qualifications (experience and training) of personnel who will be working onsite with hazardous wastes

7. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, if applicable, and transport equipment

8. Qualifications of laboratory to be utilized for TCLP sampling and analysis

9. Spill prevention, containment, and cleanup contingency measures

10. Work plan and schedule for waste containment, removal, treatment, and disposal

D. Medical Examinations

1. Before exposure to lead contaminated dust, provide workers with a comprehensive medical examination as required by 29 CFR 1910.1025 and 29 CFR 1926.62. 2. The examination shall not be required if adequate records show that employees have been examined as required by 29 CFR 1926.62 within the last year. 3. Medical examination shall include, at a minimum, approval to wear respiratory protection and biological monitoring.

E. Training

1. The Contractor shall ensure that workers are trained to perform lead paint disturbing activities and disposal operations prior to the start of work in accordance with 29 CFR 1926.62.

F. Respiratory Protection Program

1. The Contractor shall furnish each employee required to wear a negative pressure respirator with a respirator fit test at the time of initial fitting and at least once every six (6) months thereafter as required by 29 CFR 1926.62. 2. The Contractor shall establish a Respiratory Protection Program in accordance with ANSI Z88.2, 29 CFR 1910.134, and 29 CFR 1926.62.

1.06 SUBMITTALS

A. The Contractor shall submit to the Owner the following submittals prior to start of work:

1. Copies of medical records for each employee to be used on the project, including results of biological monitoring and a notarized statement by the examining physician that such an examination took place.

2. Copies of workers' training certificates.

3. Submit record of successful respirator fit testing performed by a qualified individual within the previous six (6) months, for each employee to be used on this project with the employee's name and social security number with each record.

4. The name and address of Contractor's blood lead testing lab, OSHA-CDC listing, and Certification in the State of Connecticut.

5. The name and address of Contractor's personal air monitoring and waste disposal lead testing laboratories.

6. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.

B. The Contractor shall submit to the Owner the following submittals during the job:

1. Results from personal air samples.

2. Medicals, certificates, and fit test 24 hours in advance of any new employee starting on the project.

C. The Contractor shall submit to the Owner the following submittals upon completion of the work:

1. Copies of manifests and receipts acknowledging disposal of all hazardous waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.

1.07 PERSONAL PROTECTION

A. Exposure Assessment

1. The Contractor shall determine if any worker will be exposed to lead at or above the action level.

2. The exposure assessment shall identify the level of exposure a worker would be subjected to without respiratory protection.

3. The exposure assessment shall be achieved by obtaining personal monitoring samples representative of a full shift at least (8-hour TWA).

4. During the period of the exposure assessment, the Contractor shall institute the following procedures for protection of workers.

   a. Protective clothing shall be utilized

   b. Respiratory protection

   c. Change areas shall be provided

   d. Hand washing facilities and shower

   e. Biological monitoring

   f. Training of workers

B. Respiratory Protection

1. The Contractor shall furnish appropriate respirators approved by NIOSH/MSHA for use in atmospheres containing lead dust.

2. Respirators shall comply with the requirements of 29 CFR 1926.62.

3. Workers shall be instructed in all aspects of respiratory protection.

4. The Contractor shall have an adequate supply of HEPA filter elements and spare parts on site for all types of respirators in use.

5. The following minimum respirator protection for use during paint removal or demolition of components and surfaces with lead paint shall be the 1/2 mask air purifying respirator with high efficiency filters for exposures (not in excess of 500 ug/m3 or 10 x PEL).

C. Protective Clothing

1. Personal protective clothing shall be provided for all workers, supervisors, and authorized visitors entering the work area.

2. Each worker shall be provided with a minimum of two (2) complete disposable coverall suits.

3. Removal workers shall not be limited to two (2) suits, and the Contractor shall supply additional suits as necessary.

4. Under no circumstances shall anyone entering the abatement area be allowed to re-use a contaminated disposable suit.

5. Disposable suits, such as TYVEK suits, and other personal protective equipment (PPE) shall be donned prior to entering the lead control area. A change room shall be provided for workers to put on suits and other personal protective equipment with separate areas to store their street clothes.

6. Eye protection for personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.

7. Goggles with side shields shall be worn when working with power tools or a material that may splash or fragment, or if protective eye wear is specified on the Safety Data Sheet (SDS) for a particular product to be used on the project.

1.08 PERSONAL MONITORING

A. General: The Contractor is required to perform the personal air sampling activities during lead paint disturbing work. The results of such sampling shall be posted, provided to individual workers and submitted to the Owner as described herein.

B. Sampling: Samples shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken every day after the first day if working conditions remain unchanged, but must be taken every time there is a change in removal operations, either in terms of the location or the type of work. Sampling will be used to determine eight-hour Time-weighted averages (TWA). The Contractor is responsible for personal sampling as outlined in OSHA Standard 29 CFR 1926.62 and 29 CFR 1910.1025.

C. Sampling Results: Air sampling results shall be reported to individual workers in written form no more than forty-eight (48) hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts' name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in micrograms/cubic meter (µg/m').

D. Testing Laboratory: The Contractor's testing lab shall be participating in AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP). The Contractor shall submit to the Consultant for review and acceptance, the name and address of the laboratory, certification(s) of AIHA participation, a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

PART 2 - PRODUCTS

2.01 GENERAL

A. Any substitution in materials, equipment, or methods to those specified shall be approved by the Owner prior to use. Any requests for substitution shall be provided in writing to the Owner. The request shall clearly state the rationale for the substitution.

B. Submit to the Owner product data of all materials and equipment and samples of all materials to be considered as an alternate.

C. Product data shall consist of manufacturer; catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, safety data sheets (SDS), and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products or equipment and show performance characteristics and capacities.

D. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

2.02 MATERIALS AND PRODUCTS

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. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. Materials:

1. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 6 mil.
2. Polyethylene disposable bags shall be six (6) mil. Tie wraps for bags shall be plastic, five (5) inches long (minimum), pointed and looped to secure filled plastic bags.

3. 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.

4. Impermeable containers are to be used to receive 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.)

5. HEPA filtered exhaust systems shall be used during powered dust generating abatement operations. The use of powered equipment without HEPA exhausts is prohibited.

2.03 TOOLS AND EQUIPMENT

A. Provide suitable tools for all lead disturbing operations.

B. The Contractor shall have available power cables or sources such as generators (where required).

C. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter.

PART 3 - EXECUTION

3.01 WORKER PROTECTION/TRAINING

A. The Contractor shall provide appropriate training, respiratory and other personal protection, and biological monitoring for each worker and ensure proper usage during potential lead exposure and the initial exposure assessment.

B. Workers who will perform procedures must have completed one or more of the following training courses:

1. EPA Lead Abatement Supervisor (40 hours)

2. EPA Lead Abatement Worker (32 hours)

3. HUD/EPA course "Work Smart, Work Wet, and Work Clean to Work Lead Safe" (8 hours)

4. HUD/NARI course "The Remodeler's and Renovator's Lead Based Paint Training Program" (8 hours).

5. HUD "Lead Safe Work Practices" (8 hours)

6. EPA Lead Renovation, Repair and Painting Program Course

3.02 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor is responsible for establishing and maintaining controls referenced herein to prevent dispersal of lead contamination from the lead work area.

B. The Contractor is also responsible for conducting work with applicable federal, state, and local regulations as referenced herein.

3.03 WORKER HYGIENE PRACTICES (REQUIRED DURING INITIAL EXPOSURE ASSESSMENT AND IF RESULTS OF AIR SAMPLING ARE ABOVE OSHA ACTION LEVEL)

A. Work Area Entry: Workers shall don personal protective equipment prior to entering work area, including respiratory protection, disposable coveralls, gloves, headgear, and footwear.

B. Work Area Departure: While leaving respirators on, workers shall remove all gross contamination, debris, and dust from disposable coveralls and proceed to change room and remove coveralls and footwear and place in hazardous waste disposal container.

C. Hand washing Facilities: All workers must wash their hands and faces upon leaving the work area.

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

E. Prohibited Activities: Under no circumstances shall workers eat, drink, smoke, chew gum, or tobacco, or remove their respirators in the work area.

F. Shock Hazards: The Contractor is responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by ground fault circuit interrupters (GFI).

3.04 LEAD WORK AREA (REQUIRED DURING INITIAL EXPOSURE ASSESSMENT AND IF RESULTS OF AIR SAMPLING ARE ABOVE OSHA ACTION LEVEL)

A. The Contractor shall place warning signs at all entrances and exits from the work area. Signage shall be a minimum of 20" x 14" and shall state the following:

WARNING

LEAD WORK AREA

POISON

NO SMOKING OR EATING OR DRINKING

UNAUTHORIZED ENTRY PROHIBITED

B. The Contractor shall designate a change room as specified in this Section. The change room shall consist of two (2) layers of sheeting on the floor surface adjacent to the lead work area. The change room shall have separate storage facilities for street clothes to avoid cross contamination.

C. The Contractor shall provide potable water for hand and face washing and provide a portable shower unit.

D. The Contractor shall place six-mil polyethylene drop cloths on floor/ ground surfaces prior to beginning removal work to facilitate clean-up.

3.05 WORK AREA CLEAN UP

A. The Contractor shall remove all loose chips and debris from floor surfaces and place in hazardous waste disposal bags.

B. The Contractor shall HEPA vacuum adjacent surfaces to remove dust and debris.

C. Polyethylene drop cloths shall be properly disposed of

3.06 WASTE DISPOSAL

A. The Contractor's contractual liability shall be the proper disposal of all non-hazardous and hazardous wastes generated at the site in accordance with all applicable federal, state, and local regulations as referenced herein. TCLP sampling from each building/dumpster is required to be

performed by the contractor, and SLR may also perform TCLP sampling to verify the contractor's findings/results.

END OF SECTION 02 83 13

SECTION 02 84 16 - UNIVERSAL WASTE REMOVAL AND RECYCLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

B. Refer to all attachments, drawings (as applicable) and/or 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.

C. Sections containing requirements related to this Section include, but are not limited to:

1. Section 028200 – Selective Hazardous Materials Abatement Demolition
2. Section 028213 – Asbestos Abatement
3. Section 028313 – Lead Paint Awareness
4. Section 028432 – PCBs Greater than 50 PPM Abatement
5. Performance-Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials (if present), and Paint.

1.02 SUMMARY OF WORK

A. Work of this Section includes, but is not necessarily limited to, all which is necessary for complete removal and recycling/disposal of all PCB-containing ballasts, newer ballasts, mercury containing devices, other lighting, electronics, batteries, sensors, alarms, wiring and cables, paints, thermostats, gauges, electronics, cleaning chemicals, CFC's, boiler and HVAC controls (if applicable), other hazardous materials, wastes and special wastes that exist in the interior/exterior of the building structure(s)/additions and that might be impacted by proposed demolition of the buildings/additions. The hazardous materials contractor will supply the packaging materials and pay for the proper disposal of these materials. The hazardous materials contractor will provide the labor to put the materials into the proper packaging for disposal.

1. All work including the removal, characterization (any testing that may be required by disposal facility) and disposal of hazardous materials and chemicals.
2. Removal, characterization (any testing that may be required by disposal facility) and disposal of fluorescent light ballasts and capacitors throughout all site structures.

3. Removal, characterization (any testing that may be required by disposal facility) and disposal of all containers, drums, paints, cleaning chemicals and unknown materials as well as fire extinguishers.

4. Removal, characterization (any testing that may be required by disposal facility) and disposal of contained gear oils, hydraulic oils and refrigeration liquids, etc. from various pieces of equipment.

5. Removal, characterization (any testing that may be required by disposal facility) and recycling/disposal of batteries, electronic devices, lighting signage, air conditioning units on ground, etc.

6. Removal characterization (any testing that may be required by disposal facility) and disposal of bio-hazardous/infectious waste, etc.

7. File all necessary notices, obtain all permits and licenses, and pay all governmental taxes, fees, and other costs in connection with the work. Obtain all necessary approvals of all governmental departments having jurisdiction.

8. Comply with Health and Safety Plans.

B. The Contractor, under this Section, shall provide all materials, labor, equipment and appliances as necessary to properly remove and recycle/dispose of materials.

1.03 DESCRIPTION OF WORK

A. This specification covers the proper and legal removal and disposal of all Hazardous/Universal/Bio-Hazardous/Infectious Waste from the Mill Lane Residences and Garden Street Garage Sites located in Farmington, Connecticut. The removal and disposal activities shall comply with all aspects of the contract documents and Federal, State and local requirements.

B. Universal Wastes shall include, but not be limited to, fluorescent bulbs, light fixture ballasts containing polychlorinated bi-phenyls (PCBs) or DEHP, mercury lamps, thermostats and switches, batteries, fire extinguishers, Halon fire suppression systems, paint, chemicals, refrigerants/air conditioning units, electronic devices (computers, monitors and signage), and other compressed gases, mechanical fluids, oils, and lubricants.

C. Whenever there is a conflict or overlap within these specifications and between applicable codes and regulations, the most stringent provision specified shall apply.

D. Residences at 2, 4, 10, and 14 Mill Lane in Farmington, CT were all constructed circa 1940 or later, with additions in prior to the 2000's. These structures are all 2-story (except the 2 Mill Lane apartment and the 99 Garden Street Garage) and the approximate total square footage for each is approximately 6,000 square feet (attic, basement and crawl space/void below additions/porches).

E. The proposed redevelopment consists of demolishing all of the structures listed above (including their garages, sheds and outbuildings) respectively to allow for the new Community Life Building planned as an addition to the Miss Porter's School Campus.

F. The Contractor shall independently identify and quantify all Universal Waste Items.

1.04 SUBMITTALS

A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's approval.

1. Copy of State or local license for hazardous waste hauler;

2. Certification of at least one on-site supervisor which has satisfactorily completed the OSHA 40 Hour Health and Safety Course for Handling Hazardous Materials;

3. Certificates of workers which have successfully completed at least the OSHA 40-Hour Health and Safety Course for Hazardous Materials;

4. Certificates of workers which have successfully completed the required employee training for universal/hazardous/bio hazardous/infectious waste or appropriate type of training to the type of wastes being managed;

5. Name and address of the universal waste handler and/or a destination facility where the waste materials is to be treated, deposited or recycled in accordance with all regulatory requirements (include contact person and telephone numbers), if the universal waste meets the definition of hazardous waste, the name and address of the hazardous waste treatment, storage and disposal (TSD) facility;

6. Work Plan: Provide a detailed written work plan that describes the procedures for the removal,

a. Proposed level of worker training for each type of regulated and/or hazardous material to be removed.

b. Names and applicable licenses of key personnel.

c. Proof of appropriate training for workers.

d. Proof of a current medical surveillance program for all personnel.

e. Safety Data Sheets (SDS) for any chemicals to be used on the project. All products to be used on this project must have SDS approved by the Owner's Environmental Consultant, Milone and MacBroom, Inc.

f. Proposed detailed work schedule.

7. Following final removal, and disposal or destruction, provide Owner with waste transport and disposal documents (e.g., manifests), as well as certificates of destruction and recycling as appropriate.

1.05 CODES AND REGULATIONS

A. Regulatory compliance includes but is not necessarily limited to applicable requirements set forth by :

1. Federal Regulations:

a. 29 CFR 1910, “Occupational Safety and Health Standards”(General Industry Standards)

b. 29 CFR 1910.134 “Respiratory Protection”

c. 29 CFR 1910.1200 “Hazard Communication”

d. 29 CFR 1926, “Safety and Health Regulations for Construction” (Construction Industry Standards)

e. 40 CFR 50, “National Primary and Secondary Ambient Air Quality Standards”

f. 40 CFR 60, “Standards of Performance for New Stationary Sources,” Appendix B, “Test Methods”

g. 40 CFR 117, “Determination of Reportable Quantities for Hazardous Substances”

h. 40 CFR 122, “USEPA Administered Permit Program: The National Pollutant Discharge Elimination System”

1) 40 CFR 172, “Hazardous Waste Transportation”

2) 40 FR 261, “Identification and Listing of Hazardous Waste”

3) 40 CFR 262, “Standards Applicable to Generators of Hazardous Waste”

i. 40 CFR 263, “Standards Applicable to Transporters of Hazardous Waste”

j. 40 CFR 268, “Land Disposal Restrictions”

k. 40 CFR 273, “Universal Waste Rule”

l. 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan”

m. 40 CFR 302, “Designation, Reportable Quantities, and Notification”

n. 40 CFR 112 (oil pollution prevention)

o. 40 CFR 279 (used oil)

p. 40 CFR 273 (Universal Wastes)

q. 40 CFR 761 (PCBs)

r. Toxic Substances Control Act (TSCA), US-EPA

1) Resource Conservation and Recovery Act (RCRA)

s. Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) (Superfund Law)

2. Connecticut Regulations: State requirements which govern universal waste removal and disposal include but are not necessarily limited to the following:

a. Connecticut Department of Energy & Environmental Protection (DEEP) (Hazardous and Universal Waste Management Regulations); Section 22a-454, 456 Waste Facility and Section 22a-449(c)-113 of the Regulations of Connecticut State Agencies (RCSA), respectively.

b. Connecticut DEEP; 310 CMR 40 Connecticut Contingency Plan, 310 CMR 30 Hazardous Waste Regulations, 310 CMR 1-7 Clean Water Act, 310 CMR 16, 19 Solid Waste Regulations, 314 CMR 1-8 Clean Air Act

c. Local Town, City or County Bylaws, rules and regulations.

B. Under TSCA, items that contain more than 500 parts per million (PPM) of PCBs are classified as PCB material, items that contain between 50 ppm and 500 ppm of PCB are classified as PCB-contaminated and items that contain less than 50 ppm of PCBs are classified as non-PCB items. Under the Small Capacitor Exemption, TSCA has allowed the disposal of non-leaking, intact "small capacitors", defined as containing less than three pounds of PCB dielectric fluid, in a municipal solid waste landfill. Light ballasts containing a small PCB capacitor are covered under this category. The intent of the "small capacitor" disposal rule is for "random disposal" in a landfill by "householders and other infrequent disposers". When commercial and industrial entities dispose of large quantities of small PCB capacitors, the EPA strongly encourages voluntary collection and disposal of PCB capacitors in chemical waste landfills or high temperature incinerators.

C. Under the "Superfund" laws, PCBs are specifically listed as a hazardous substance. The "release" of more than one pound of PCBs into the environment triggers a "Superfund" notification and cleanup requirement. Since twenty-five ballasts collectively contain approximately one pound of PCBs, the disposal of twenty five or more PCB-containing ballast in a landfill would trigger a "Superfund" action.

D. The State of Connecticut General Hazardous Waste Statue 22A 454, 456 requires that PCB ballast must be incinerated or sent to a chemical waste landfill. The statue defines PCB waste, including PCB ballast, as Connecticut Regulated Wastes.

E. Other Regulations: The other relevant regulations affecting disposal of PCBs include the following:

1. Department of Transportation (DOT) regulations – DOT regulation HM-181 regulates transportation of hazardous materials, including PCBs. 2. Occupational Safety and Health Administration (OSHA) – OSHA regulates worker's safety and exposure to a variety of chemicals including PCBs. 3. Resource Conservation and Recovery Act (RCRA) – RCRA regulates wastes, which fail Toxic Characteristic Leachate Procedure (TCLP) and which contain more than 50 ppm of PCBs.

PART 2 - PRODUCTS

2.01 GENERAL

A. 35 or 55-gallon metal, fiber drums or containers with lids that can be secured and sealed, DOT approved.

B. Appropriate waste labels identifying contents as regulated and hazardous wastes as defined by 49 CFR 172.

C. Fluorescent Lamp Disposal (Crusher) units, such as DexTrite Fluorescent® Lamp Disposal equipment, or equivalent. Such equipment must be capable of capturing fugitive mercury vapors during the bulb crushing process, as well as the fractured and broken waste products.

D. HEPA and charcoal filter equipped mercury capture vacuum.

E. Cardboard boxes and sleeves for packaging lamps that will be removed from the site intact or unbroken.

F. Recovery tanks to temporarily hold compressed gasses.

G. Health & Safety equipment complying with health and safety plan.

PART 3 - EXECUTION

3.01 GENERAL

A. Procedures and methods contained herein are to provide guidance to protect from the contamination of the environment, and exposure to workers, while handling hazardous waste and regulated waste-streams for disposal/recycling/destruction.

B. Owner to Stop Work: The Owner's representative and the Owner's Environmental Consultant, SLR, shall have the authority to stop the work at any time that conditions are not within Specification and/or applicable regulations. The stoppage of work shall continue until conditions have been corrected to the satisfaction of the Owner's representative or Owner's Environmental Consultant. Standby time to resolve the problems shall be at the Contractor's expense.

C. Personal Protective Equipment:

1. Personal protective equipment shall consist of (at a minimum) safety goggles or other protective eye-ware, work shoes with non-slip soles (e.g., neoprene), chemical resistant gloves that cover the hand and an apron that covers the front of the worker's body from shoulder to toes (e.g., neoprene or nitrile gloves).

2. Personal protective equipment contaminated by handling operations should be disposed of as contaminated waste.

3. Hammering or sudden impact methods for removing ballast's from the light fixture shall not be employed, as such methods may cause leakage in an otherwise non-leaking ballast.

4. Throwing and tossing of ballast's into disposal drums shall not be conducted, as such activities may cause leakage in an otherwise non-leaking ballast.

D. Work Procedures

1. Contractor shall obtain a hazardous waste generator number from Region I, USEPA for the Owner.

2. During the light fixture removal stage during demolition, the following procedures (or equivalent alternate but protective measures) shall be followed:

a. Carefully remove fixtures, and stack them in a designated portion of the work area.

b. Designate an area where the fixtures can be disassembled, and components removed and segregated (e.g., lamps, ballasts). The area should be remote from other demolition activities, and have adequate ventilation and lighting.

c. The work area for fixture disassembly shall (at a minimum) have the floor lined with one layer of 6-mil fire-retardant polyethylene plastic to control accidental spills or

breakage. The work area should have a table or other solid work platform to facilitate disassembly of the fixtures, and the protective plastic sheeting should cover the work table area and waste drums/lamp crushing/lamp repackaging equipment.

d. Carefully remove lamps from fixtures, and either crush them or repackage them for disposal.

e. In the event a lamp breaks, utilize the mercury capture vacuum to remove all debris generated.

3. Carefully remove ballasts, and segregate for disposal in the following manner:

a. Ballasts labeled as "No-PCBs" shall NOT be segregated and shall be treated as PCB waste as potting material may contain PCBs and DEHP. Handle and dispose of in the same manner as ballasts containing PCBs and/or DEHP.

b. Non-leaking ballasts shall be segregated and drummed for disposal as hazardous wastes. These ballasts may be destroyed by high temperature incineration, or land filled at a properly permitted facility.

c. Leaking ballasts shall be segregated and drummed. Punctures or damage to these ballasts exposes an oily or tar-like substance. These ballasts, and all materials it contacts, MUST be incinerated under TSCA; they cannot be landfilled.

E. Miscellaneous Stored Materials In Containers

1. Miscellaneous materials may include antifreeze, cleaning solutions, paints, and other miscellaneous materials.

2. During removing/recycling of materials enclosed in their original container, the Contractor shall package, and label (lab packed) by waste classification in accordance with appropriate RCRA and Connecticut Department of Transportation (CTDOT). In turn these containers shall be transported, under proper manifesting procedures, to a recycling facility. The facility shall forward a certificate of recycling or disposal to the Contractor, who shall submit this information to the Owner.

F. Universal Waste

1. Universal waste includes, but is not limited to, fluorescent bulbs, light fixture ballasts containing polychlorinated bi-phenyls (PCBs) or DEHP, mercury lamps and switches, batteries, fire extinguishers, Halon fire suppression systems, paint, refrigerants, electronic devices (computers and monitors), and other compressed gases, mechanical fluids, oils, and lubricants, as defined in 40 CFR 273 and Section 22a-449(c)-113 of the Regulations of Connecticut State Agencies (RCSA). Follow procedures for handling, storage, labeling, shipping, recording keeping and other procedures as required in 40 CFR 273 and Section 22a-449(c)-113.

G. Regulated Waste

1. Non-thermostat mercury switches: Handle and dispose of in accordance with State regulation and applicable Federal regulations.

2. Used oil: Handle and dispose of in accordance with State regulations.

3. Refrigerants: Prior to disposal of refrigerant containing equipment, verify that refrigerant has been removed per the requirements of 40 CFR Part 82 (Protection of Stratospheric Ozone).

4. Diesel fuel: If possible, use on site to run equipment. Dispose of or recycle any remaining fuel as per applicable regulations.

5. Fire extinguishers: Contact manufacturer for recycling or donate to local fire department.

6. Halon Fire Suppression System: For recovery and management of Halon, utilize a technician EPA certified in appropriate level for the system. Technician is to use an EPA-certified reclaimer for disposal.

H. Bio-Hazardous/Infectious Waste

1) Wall receptacles in each room may contain needles, bodily fluids, etc.

2) A front storage room adjacent exam 1 is labeled as hazardous waste storage.

I. Transportation

1. Transport waste materials using properly permitted vehicles operated by drivers with Commercial Drivers Licenses (CDLs) and Hazardous Materials endorsements. Coordinate transportation routes with CTDOT. Provide Owner with copies of transporter certifications and EPA ID number a minimum of seven (7) days prior to first use. Chain of custody records shall be maintained which include the date of pickup, number of drums, name of transporter and destination.

J. Waste Disposal Documentation

1. Waste shipment records and manifests for all materials transported from the site as required by regulations and disposal facility are to be provided to the Owner every five (5) business days. Incorporate this information into the close out package to be provided to the Owner. Within thirty (30) days of generation, Contractor shall provide waste manifests/shipment records and Certificates of Recycling and Disposal (CRD) to Owner.

2. Certificates of Discontinuance for all equipment and fixtures.

K. Disposal Facilities

1. Contractor shall use only disposal facilities which have been pre-approved by the Owner and its insurers and with valid regulatory permits for type of waste being handled. Provide Owner with copies of disposal facility regulatory permits and EPA identification number a minimum of seven (7) days prior to shipping to that facility. Provide disposal facility required documentation including additional waste sampling.

END OF SECTION 02 84 16

SECTION 02 84 32 – PCBS GREATER THAN 50 PPM ABATEMENT - APPLIES IF VERIFICATION SAMPLING FOUND GREATER THAN 50 PPM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Supplementary Conditions apply to this Section.

B. Sections containing requirements related to this Section include, but are not limited to:

1. Section 028200 – Selective Hazardous Materials Abatement Demolition
2. Section 028213 – Asbestos Abatement
3. Section 028313 - Lead Paint Awareness
4. Section 028416 – Universal Waste Removal/Recycling
5. Performance-Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials (as applicable), and Paints

1.02 CONSULTANT

A. SLR International Corporation (SLR) has been retained as the Consultant for the purposes of construction administration and project monitoring during PCB Abatement, should this activity be applicable to this project. The Consultant will represent the Owner in all phases of the abatement project at the discretion of the Owner. The PCB Abatement Contractor shall regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the abatement, submission of data, and daily field “punch-list” items.

1.03 USE OF THE CONTRACT DOCUMENTS

A. It shall be incumbent upon the PCB Abatement Contractor to visit the Site structures and determine what exists, its condition, and what will be required to accomplish the Work intended by the Contract Documents. No increase in the Contract Sum will be permitted as a result of the PCB Abatement Contractor's failure to visit the Site and understand the existing conditions.

B. All work shall comply with applicable Codes, laws, regulations, and ordinances wherever applicable. The most stringent of all the foregoing shall govern.

C. It is not intended that the Specifications show every detail of the Work, but the PCB Abatement Contractor shall be required to furnish within the Contract Sum all material and labor necessary for the completion of the Work in accordance with the intent of the Specifications.

D. In case of ambiguity among the Contract Documents, the more stringent requirement as determined by the Consultant shall prevail.

E. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant, to correct any conflicts.

F. All items, not specifically mentioned in the Specifications but implied by trade practices to complete the work, shall be included.

1.04 EXAMINATION OF THE SITE

A. It is understood that the PCB Abatement Contractor has examined the Site and made his/her own estimates of the facilities and difficulties attending the execution of the Work, and has based his price thereon.

B. Except for unforeseeable concealed conditions as determined by the Consultant, the PCB Abatement Contractor shall make no claim for additional cost due to the existing conditions at the Site.

1.05 CONTRACTOR QUALIFICATIONS

A. All bidders shall submit a record of prior experience in PCB abatement projects, specifically including removal of PCB-containing materials listing no less than three (3) completed jobs in the past year, with all projects being of similar size and scope. The PCB Abatement Contractor shall list the experience and training of the project foremen and all on-site personnel. The information that should be included is as follows:

1. Project Name and Address
2. Owner's Name and Address
3. Architect/Consultant
4. Contract Amount

5. Date of Completion

6. Extras and Changes

B. Submit a written statement regarding whether the PCB Abatement Contractor has ever been found out-of-compliance with federal or state regulations pertaining to worker protection, removal, transport, or disposal.

1.06 TESTING LABORATORY SERVICES

A. The PCB Abatement Contractor shall submit to the Consultant the name; address and qualifications of proposed laboratories intended to be utilized for sample analysis as required by this section.

1.07 GENERAL REQUIREMENTS

A. The PCB Abatement Contractor 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 United States Environmental Protection Agency (USEPA), 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 work covered under this section shall be trained in accordance with OSHA Regulations 29 CFR 1910.1000 and 29 CFR 1910.1200. It should also be noted that work associated with PCB removal may also involve exposure to PCBs during demolition and removal activities specified herein and the PCB Abatement Contractor shall perform required exposure assessment for PCBs.

C. The PCB Abatement Contractor shall provide a Project Health and Safety Officer having a minimum of eight (8) hours of supervisor training in hazardous waste site operations in accordance with the requirements of 29 CFR 1910.1200. The supervisor must be on site at all times during abatement work. This supervisor and other contractor representatives must attend a pre-abatement meeting to be scheduled by the building owner/owners representative.

D. This section specifies the procedures for removal of existing materials containing polychlorinated biphenyls (PCB), equal to or greater than (>)50 parts per million (ppm), in the form of interior/exterior damp-proofing materials, paint (<50 ppm but attached over 50 ppm materials), wall expansion joint compound and contaminated wall materials and disposal of removed materials as PCB Bulk Product Waste (EPA Bulk Product Waste Reinterpretation dated October

24, 2012). The contractor must dispose of Remediation Waste (segregated adjacent materials and waste from abatement - suits, polyethylene sheeting, towels/rags, respirator cartridges, etc.) in addition to the Bulk Product Waste.

E. Disturbance or removal of polychlorinated biphenyls (PCB) containing materials may cause a health hazard to workers and adjacent occupants. The PCB Abatement Contractor shall disclose to all of his workers, supervisory personnel, subcontractors and consultants who will be at job site of the seriousness of the hazard and of proper work procedures which must be followed.

F. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of polychlorinated biphenyls (PCB) containing materials, appropriate, continuous measures as necessary to protect all workers from the hazard of exposure shall be taken. Such measures shall include the procedures and methods described herein, regulations of the OSHA, USEPA, and local requirements as applicable.

G. The PCB Abatement Contractor shall employ a Competent Person (Supervisor) with at least three (3) years' experience on projects of similar scope and magnitude who shall be responsible for all work involving PCB abatement as described in the specifications and defined in applicable regulations, and have full time daily supervision of the same. The Supervisor shall be the Competent Person as defined by OSHA regulations and have experience in the proper removal and disposal of PCB-Containing Materials.

H. The PCB Abatement Contractor 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 PCB Abatement Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.

I. The PCB Abatement Contractor shall incur the cost of all fines resulting from regulatory noncompliance as issued by federal, state, and local agencies. The PCB Abatement Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence. The PCB Abatement Contractor shall incur all costs associated with contaminating adjacent properties, including but not limited to all possible litigation costs of the owners, consultants and other involved parties.

J. The PCB Abatement Contractor 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 of who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

K. The PCB Abatement Contractor shall provide enough labor to guarantee completion of the work within the time frame given and within the normal operating hours of the buildings.

1.08 SCOPE OF WORK

A. This specification covers the proper and legal removal and disposal of all interior/exterior damp-proofing materials (as applicable), paint, contaminated wall (as applicable), foundation and floor/ground materials (as applicable) and adjacent window and door components as PCB Bulk Product Waste (over 50 ppm PCB) from the 2, 4, 10, and 14 Mill Lane residences and associated sheds/garages, and the 99 Garden Street Garage Site buildings located in Farmington, Connecticut. The abatement activities shall comply with all aspects of the contract documents and Federal, State and local requirements.

B. Whenever there is a conflict or overlap within these specifications and between applicable codes and regulations, the most stringent provision specified shall apply.

C. The General Contractor or Remediation Subcontractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the General Contractor or Remediation Subcontractor of its obligation to furnish all labor and materials necessary to perform the Work.

D. Work outlined in this Section includes all work necessary for the complete removal and disposal of all PCB-Containing Materials impacted by the proposed work associated with the abatement/remediation/demolition project of the above-mentioned structures to allow for the newly planned Miss Porter's Campus Community Life Building.

E. The building abuts several properties, some of which are residential. The contractor is responsible for any abatement/remediation if the adjacent properties become contaminated from abatement/remediation/demolition activities. All costs associated with contamination and subsequent abatement/remediation will be the contractor's responsibility, not the building owner.

F. Note the work in this section is subject to TSCA regulation 40 CFR 761 and Connecticut General Statutes in accordance with CTDEEP requirements for materials containing >50/1 ppm (PCB-Containing Materials) should materials be discovered at the properties above this regulatory limit. The Owner or the Owner's Authorized Representative will then be responsible for notifying the CTDEEP. Work would include the removal of existing materials containing polychlorinated biphenyls (PCB), equal to or greater than 50 parts per million (ppm), in the form of interior/exterior damp-proofing materials (if applicable), paint (<50 ppm but attached over 50 ppm materials), and disposal of removed materials as PCB Bulk Product Waste (EPA Bulk Product

Waste Reinterpretation dated October 24, 2012). The contractor must dispose of Remediation Waste (segregated adjacent materials (walls/floors/ground/roof/ceiling/etc.) and waste from abatement - suits, polyethylene sheeting, towels/rags, respirator cartridges, etc.) in addition to the Bulk Product Waste.

G. The quantities, if given below are provided to establish the order of magnitude of the abatement project. Actual quantities may vary. The PCB Abatement Contractor is responsible for verification of all quantities scheduled for removal. This verification shall include an on-site walk-through inspection of the buildings. The materials/quantities listed are estimates and no extra will be accepted. All interior/exterior adjacent materials that may be discovered as associated with walls/floors/ground/roof/ceiling/etc. are included in the base bid work (no extra cost accepted) until <1 ppm PCB is obtained by verification sampling.

1. Location, materials, and estimated quantities included in the base bid are noted below and may be found in, the following document: ―Performance Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials (assumed as applicable), and Paint within the residential structures via the SLR survey dated January 2017 (Appendix A).

H. The scope of work is summarized as the following:

1. PCB Sealants/Mastics/Plasticizers/Asphalt Products (roofing, foundation damp-proofing (as applicable), pavements, etc.)/Adhesives/Gaskets/etc. are known to contain PCBs above the EPA threshold of >50 ppm PCB source material:

   a. Interior/Exterior walls systems with attached damp-proofing materials (assumed applicable until tested/analyzed and proven to be below 50 ppm), and paint attached/adjacent building materials including contaminated wall (including windows and doors), foundation, and floor/ground.

2. Adjacent Building Materials have not been collected. The adjacent wall/foundation/flooring/ground surfaces will be sampled upon completion of remediation/demolition.

3. PCB Materials Removal and Disposal Summary Based on the results of the PCB sampling, SLR recommends that the following PCB-containing materials be removed, managed, and disposed (i.e., removal under proper controls to minimize potential contaminant spread, and waste profiled accordingly to a facility that can accept this waste), in accordance with EPA regulations as Bulk Product Waste (interior/exterior damp-proofing materials if applicable, paint, contaminated wall materials, adjacent window and door components and foundation/floor/ground materials (as applicable). Separated adjacent building materials (walls/floors/ground/roof/ceiling/etc.), building materials and ground surfaces (asphalt, soil, etc.) that fail verification sampling (if applicable) must be disposed of as Remediation Waste; testing required to determine appropriate waste stream. PCB waste materials (poly sheeting, tape, suits, respirator cartridges, towels/rags, etc.) created during the abatement process must

be disposed of as Remediation Waste unless sampling proves an alternate disposal method is acceptable. A removal and disposal summary is described following each identified PCB-containing material. If determined during sampling/analysis, additional adjacent building and ground materials (asphalt/soil, etc.) will require additional removal (at 6 inch to 12 inch intervals and at varying depths, and cleaning should verification sampling discover >1 ppm PCB). NO extra cost/fees may be charged by the contractor to do additional cleaning/adjacent/ground material removal.

4. Interior/Exterior damp-proofing materials (as applicable), paint, contaminated wall materials, and adjacent window and door components may apply.

    a. Remove all interior/exterior wall systems, attached damp-proofing, paint, wall expansion joint compound and adjacent window and door components/systems (adjacent roof and foundation/floor/ground materials as well, if attached) as Bulk Product Waste.

    b. Remove additional areas/materials (adjacent wall, foundation, asphalt, concrete, soil, etc.) if EPA verification sampling fails the 1ppm PCB EPA and CT DEEP limits.

I. The results of the testing for PCB containing materials are identified in the Performance Based Remediation and Disposal Plan for PCB-Containing Interior/Exterior Damp-proofing Materials that may apply, Paints, and the Pre-Demolition Hazardous Material Survey Report(s), as applicable.

J. Project Scope Locations and Work Statement: The abatement sites are located at 2, 4, 10, 14 Mill Lane Residences (including sheds and garages) and 99 Garden Street (Garage only), in Farmington, Connecticut. The proposed removal and disposal activities to be performed by PCB Abatement Contractor following identification of materials during additional testing shall include the following:

1. Site preparation and controls to facilitate remediation of PCBs. Containment procedures referenced for the abatement zone must be utilized for PCB Bulk Product Waste removal.

2. Health and Safety in accordance with Occupation Safety and Health Administration (OSHA) requirements.

3. Remove and dispose of all interior/exterior materials/components/systems that apply. All removal will occur with protection of ground/floor surfaces (plywood and reinforced polyethylene sheeting), including hard solid barriers- walls (wood or similar material) on the exterior areas that abut other properties.

4. Cleaning of each work area following complete removal of PCB containing materials to ensure adherence for post cleaning verification levels to be established in a separate Performance Based Remediation Disposal Plan (PIP), if applicable.

5. Remove and dispose of adjacent components and asphalt, concrete and/or soils if verification sampling shows these materials contain >1 ppm PCB. These materials will be disposed of as PCB remediation waste as well as waste generated by the abatement process.

6. Recordkeeping and distribution as required in accordance with 40 CFR part 761.125 (c)(5).

K. The general/abatement contractors shall only use heavy equipment operators that have proper asbestos and/or HAZWOPER training when disturbing/removing/moving and packing asbestos, lead and PCB containing materials. Acceptable training for asbestos can be 32 hour asbestos worker training or 16 hour asbestos operations and maintenance training with annual refresher training. 40 hour HAZWOPER training and annual refresher training is required for operators handling lead and/or PCB containing/contaminated materials. All operators must also have current medicals, fit test data and wear respirators during work. Respirator usage can be suspended if personal air sampling shows appropriate air concentrations complying with OSHA for asbestos containing materials.

1.09 REFERENCES

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.

1. American National Standards Institute (ANSI)

   a. ANSI.Z89.1 Personnel Protective Equipment - Protective Headwear for Industrial Worker's Requirements (Latest Revision) b. ANSI.Z87

2. Code of Federal Regulations (CFR)

   a. 29 CFR Subpart D- Walking, Working Surfaces

   b. 29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response (HAZWOPER).

   c. 29 CFR 1910.134 - Respiratory Protection Standard

   d. 29 CFR 191 0.146 - Permit-Required Confined Spaces

   e. 29 CFR 1910.1000 — Air Contaminants (Table Z-1)

   f. 29 CFR 1910.1200 - Hazard Communication

   g. 29 CFR 1926.20 - General Health and Safety Provisions

   h. 29 CFR 1926.57 – Ventilation

3. 29 CFR 1926.59 - Hazard Communication Program

4. 29 CFR 1926.62 - Lead Exposure in Construction

   a. 29 CFR 1926.95 - Criteria for Personal Protective Equipment

5. 29 CFR 1926, Subpart H - Materials Handling, Storage, Use and Disposal
    a. 29 CFR 1926, Subpart L - Scaffolding
    b. 29 CFR 1926, Subpart M -Fall Protection
    c. 29 CFR 1926, Subpart X – Ladders

6. 29 CFR 1926, Subpart Z - Toxic and Hazardous Substances
    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
    e. Waste f. 40 CFR 263 - Standards Applicable to Transporters of Hazardous Waste

7. 40 CFR 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
    a. 40 CFR 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

8. 40 CFR 268 - Land Disposal Restrictions
    a. 40 CFR 700 - Toxic Substances Control Act (TSCA)

9. 40 CFR 761- PCBs Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
10. 49 CFR 105 - Hazardous Materials Program Definitions and General Procedures
11. 49 CFR 171 - General Information, Regulations and Definitions
12. 49 CFR 172 - Hazardous Material Table, Special Provisions,
13. Hazardous Materials Communications, Emergency Response Information, and Training Requirements
14. 49 CFR 173 - Shippers-General Requirements for Shipments and Packaging
15. 49 CFR 177 - Carriage by Public Highway
16. 49 CFR 176 - Specifications for Packaging

17. National Institute for Occupational Safety and Health (NIOSH)

    a. Publication Number 87-106 Respiratory Decision Logic

    b. NIOSH /OSHA Booklet 3142 Lead in Construction

    c. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

18. U.S. Environmental Protection Agency (USEPA), Toxic Substances Control Act (TSCA)

    a. Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act

    b. 40 CFR Part 761.50 - Applicability (b) (1-8)

    c. 40 CFR Part 761.61 - PCB Remediation Waste

    d. 40 CFR Part 761.62 - PCB Bulk Product Waste

    e. 40 CFR Part 761.79 – Decontamination

19. Center for Disease Control (CDC): Air Pollution and Respiratory Health.

1.10 DEFINITIONS

A. The following definitions as used within this technical specification as well as references to specific sections of the Code of Federal Regulation section 40 CRF Part 761 are provided. Definitions are extracted in part from 40 CFR Part 761.3, for full definitions refer to the specified section of regulations.

1. CERCLA means the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9657).

2. Chemical waste landfill means a landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as specified in §761.75.

3. Cleanup Site means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste.

4. Containment means the enclosure within the building which establishes a contaminated area and surrounds the location where PCB and/or other toxic or hazardous substance removal is taking place and establishes a Control Work Area.

5. Designated Facility means the off-site disposer or commercial storer of PCB waste designated on the manifest as the facility that will receive a manifested shipment of PCB waste.

6. Disposal means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB Items.

7. DOT means the United States Department of Transportation.

8. EPA identification number means the 12-digit number assigned to a facility by EPA upon notification of PCB waste activity under §761.205.

9. Excluded PCB products means PCB materials which appear at concentrations less than 50 ppm as defined in 40 CFR §761.3.

10. Fixed Object means mechanical equipment, electrical equipment, fire detection systems, alarms, and all other fixed equipment, fixtures or other items which cannot be removed from the work area.

11. Generator of PCB waste means any person whose act or process produces PCBs that are regulated for disposal under subpart D of 40 CFR Part 761, or whose act first causes PCBs or PCB Items to become subject to the disposal requirements of subpart D, or who has physical control over the PCBs when a decision is made that the use of the PCBs has been terminated and therefore is subject to the disposal requirements of subpart D. Unless another provision of 40 CFR Part 761 specifically requires a site-specific meaning, "generator of PCB waste" includes all of the sites of PCB waste generation owned or operated by the person who generates PCB waste.

12. HEPA means High Efficiency Particulate Air filtration efficiency of 99.97 percent down to 0.3 microns. Filtration provided on specialized vacuums and air filtration devices to trap particles.

13. High occupancy area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.

14. Incinerator means an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. Examples of devices used for incineration include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.

15. Laboratory means a facility that analyzes samples for PCBs and is unaffiliated with any entity whose activities involve PCBs.

16. Liquid PCBs means a homogenous flowable material containing PCBs and no more than 0.5 percent by weight non-dissolved material.

17. Low occupancy area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: less than 840 hours (an average of 16.8 hours per week) for non-porous surfaces and less than 335 hours (an average of 6.7 hours per week) for bulk PCB remediation waste. Examples could include an electrical substation or a location in an industrial facility where a worker spends small amounts of time per week (such as an unoccupied area outside a building, an electrical equipment vault, or in the non-office space in a warehouse where occupancy is transitory).

18. Manifest means the shipping document EPA form 8700-22 and any continuation sheet attached to EPA form 8700-22, originated and signed by the generator of PCB waste in accordance with the instructions included with the form and subpart K of this part.

19. Mark means the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items, or other objects subject to these regulations.

20. Marked means the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations.

21. Municipal solid wastes means garbage, refuse, sludges, wastes, and other discarded materials resulting from residential and non-industrial operations and activities, such as household activities, office functions, and commercial housekeeping wastes.

22. Non-liquid PCBs means materials containing PCBs that by visual inspection do not flow at room temperature (25°C or 77°F) or from which no liquid passes when a 100 g or 100 ml representative sample is placed in a mesh number 60 ±5 percent paint filter and allowed to drain at room temperature for 5 minutes.

23. Non-porous surface means a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface. Examples are: smooth uncorroded metal; natural gas pipe with a thin porous coating originally applied to inhibit corrosion; smooth glass; smooth glazed ceramics; impermeable polished building stone such as marble or granite; and high density plastics, such as polycarbonates and melamines, that do not absorb organic solvents.

24. On site means within the boundaries of a contiguous property unit.

25. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance. Refer to §761.1(b) for applicable concentrations of PCBs. PCB and PCBs as contained in PCB items are defined in §761.3. For any purposes under this part, inadvertently generated non-Aroclor PCBs are defined as the total PCBs calculated following division of the quantity of mono-chlorinated biphenyls by 50 and dichlorinated biphenyls by 5.

26. PCB Article means any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3)

which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article.

27. PCB Article Container means any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

28. PCB Bulk Product Waste means waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal is >50 ppm PCBs. PCB bulk product waste does not include PCBs or PCB Items regulated for disposal under §761.60(a) through (c), §761.61, §761.63, or §761.64. PCB bulk product waste is further defined in 40 CFR §761.3. Note in accordance with October 2012 re-interpretation from the U.S. Environmental Protection Agency (EPA), adjacent porous materials in contact with PCB Bulk Products shall be considered PCB Bulk Product Material for disposal purposes.

29. PCB Capacitor means any capacitor that contains >500 ppm PCB. Concentration assumptions applicable to capacitors appear under §761.2.

30. PCB Container means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

31. PCB-Contaminated means a non-liquid material containing PCBs at concentrations >50 ppm but < 500 ppm; a liquid material containing PCBs at concentrations >50 ppm but < 500 ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration >10 pg/100 cm2 but < 100 pg/100 cm2 , measured by a standard wipe test as defined in §761.123.

32. PCB Equipment means any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

33. PCB Item means any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs.

34. PCB Remediation Waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations >50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was >500 ppm PCBs beginning on April 18, 1978, or >50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, as further defined in 40 CFR §761.3.

35. PCB waste(s) means those PCBs and PCB Items that are subject to the disposal requirements of subpart D in 40 CFR Part 761.

36. Porous surface means any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool;

unglazed ceramics; ceramics with a porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low-density plastics such as Styrofoam and low-density polyethylene; coated (varnished or painted) or uncoated wood; concrete or cement; plaster; plasterboard; wallboard; rubber; fiberboard; chipboard; asphalt; or tar paper. For purposes of cleaning and disposing of PCB remediation waste, porous surfaces have different requirements than nonporous surfaces.

37. RCRA means the Resource Conservation and Recovery Act (40 U.S.C. 6901 et seq.).

38. Standard wipe sample means a sample collected for chemical extraction and analysis using the standard wipe test as defined in §761.123. Except as designated elsewhere in part 761, the minimum surface area to be sampled shall be 100 cm2.

39. Storage for disposal means temporary storage of PCBs that have been designated for disposal.

40. SW-846 means the document having the title "SW-846, Test Methods for Evaluating Solid Waste,"

41. Totally enclosed manner means any manner that will ensure no exposure of human beings or the environment to any concentration of PCBs.

42. Transfer facility means any transportation-related facility including loading docks, parking areas, and other similar areas where shipments of PCB waste are held during the normal course of transportation. Transport vehicles are not transfer facilities under this definition, unless they are used for the storage of PCB waste, rather than for actual transport activities. Storage areas for PCB waste at transfer facilities are subject to the storage facility standards of §761.65, but such storage areas are exempt from the approval requirements of §761.65(d) and the recordkeeping requirements of §761.180, unless the same PCB waste is stored there for a period of more than 10 consecutive days between destinations.

43. Transporter of PCB waste means, for the purposes of subpart K of 40 CFR Part 761, any person engaged in the transportation of regulated PCB waste by air, rail, highway, or water for purposes other than consolidation by a generator.

44. Transport vehicle means a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle. 45. TSCA means the Toxic Substances Control Act (15 U.S.C. 2601 et seq.).

1.11 SUBMITTALS

A. A pre-abatement meeting shall occur with the PCB Abatement Contractor, Owner or the Owner's Authorized Representative (Milone and MacBroom, Inc.), and environmental consultant two weeks prior to commencement of work. The following documents shall be submitted immediately upon project award to the Owner prior to commencement of PCB Removal work:

1. Site Specific Health and Safety Plan (HASP): The PCB Abatement Contractor shall prepare a site specific HASP plan for protection of workers and control of the work site in accordance with OSHA regulatory requirements. The HASP shall govern all work conducted at the site during the abatement of PCB materials and related debris; waste handling, sampling, waste

management; and waste transportation. 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

d. Medical Surveillance

e. Work Areas

f. Personal Protective Equipment

g. Personal Hygiene and Decontamination

h. Standard Operating Procedures and Engineering Controls

2. Emergency Equipment and First Aid Provisions

   a. Equipment Decontamination

   b. Air Monitoring

3. Telephone List

   a. Emergency Response and Evacuation Procedures and Routes

   b. Site Control

   c. Permit-Required Confined Space Procedures

   d. Spill prevention and Containment Plan

   e. Heat and Cold Stress

   f. Record Keeping

   g. Community Protection Plan

4. Training Documentation: Documentation of OSHA 40-Hour HAZWOPER Training for all employees and subcontractors to be used for the abatement work, and 8-Hour HAZWOPER Supervisor Training for the designated on-site Health and Safety Officer for the abatement work.

5. PCB and or other Toxic or Hazardous Substances Disposal Plan: A written plan that details the PCB Abatement Contractor's plan for transportation and disposal of PCB containing or other Toxic or Hazardous Substance wastes generated during the project. The Disposal Plan shall identify:

a. Waste packaging, labeling, placarding and manifesting procedures.

b. The name, address and 24-hour contact number for the proposed treatment or disposal facility or facilities to which waste generated during the project will be transported.

c. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters, and EPA identification number for firms that will transport waste.

d. The license plate numbers of vehicles to be used in transporting of the waste from the site to the disposal facility.

e. 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.

6. Safely Data Sheets: 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 but not limited to specialty cleaners and chemical stripping products.

B. The following documents shall be submitted to the Owner within fifteen (15) work days following removal of waste from the site:

1. Waste Profile Sheets

2. Pre-Disposal Analysis Test Results (If required by disposal facility)

3. Manifests signed by the disposal facility

4. Tipping Receipts provided by the disposal facility

5. Certification of Final Treatment/Disposal signed by the responsible disposal facility official.

C. PCB Work Closeout Submittals:

1. Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing the PCB-containing or other Toxic or Hazardous Substances materials have been properly disposed.

D. Product Data: Catalog sheets, specifications, and application instructions for any removal products, if used.

1.12 REGULATIONS AND STANDARDS

A. The PCB Abatement Contractor 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 PCB Containing Material removal. Specifically, The PCB

Abatement Contractor shall comply with the requirements of the following as applicable to the work to be performed:

1. Toxic Substance Control Act (TSCA) (40 CFR Part 761).
2. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund Law).
3. Department of Transportation (DOT) regulations - DOT regulation HM-181 regulates transportation of hazardous materials, including PCBs.
4. Occupational Safety and Health Administration (OSHA) - OSHA regulates workers' safety and exposure to a variety of chemicals including PCBs.
5. Connecticut Basic Building Code (BOCA) (including Connecticut Supplements);
6. Life Safety Code (NFPA); and
7. Local health and safety codes, ordinances or regulations pertaining to hazardous materials remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.13 FINAL VISUAL CLEARANCE

A. Following the completion of the work, the Consultant (i.e., SLR) shall perform a final visual inspection of the work area per guidelines EPA and State of Connecticut CTDEEP regulations and to assess that the above-indicated PCB-containing materials were removed.

1.14 POSTING AND RECORD MAINTENANCE REQUIREMENTS

A. The following items shall be conspicuously displayed proximate but outside of abatement work areas.

1. Exit Routes -Emergency exit procedures and routes
2. Emergency Phone Numbers - 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 Emergency Advise (CHEMTREC); the local Department of Health's local office; the PCB Abatement Contractor (on-site and after hours numbers); and the environmental consultant (on-site and after hours numbers).
3. Warning Signs - Warning signs shall be in English and the language of any workers onsite who do not speak English, and be of sufficient size to be clearly legible and display the following or similar language in accordance with 29 CFR 1910.1200:

WARNING

HAZARDOUS WASTE WORK AREA

PCBs-POISON

NO SMOKING, EATING OR DRINKING

AUTHORIZED PERSONNEL ONLY

PROTECTIVE CLOTHING IS REQUIRED IN THIS AREA

In addition, all entrances to work areas shall be posted with a PCB ML marker.

B. The PCB Abatement Contractor shall maintain the following items on-site and available for review by all employees and authorized visitors:

1. PCB Abatement Contractor's Project Specific Health and Safety Plan
2. Certificates of Training for all employees and the project Supervisor
3. Codes, Standards and Publications
4. Safety Data Sheets (SDS) for all chemicals used during the project.
5. Copies of the PCB Abatement Contractor's written hazard communication, respiratory protection, and confined space entry programs.

C. Fees, Permits and Licenses: The PCB Abatement Contractor shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or processing in the performance of the work specified in this Section.

1. The PCB Abatement Contractor shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights. The PCB Abatement Contractor shall hold the Owner and the Owner's Authorized Representative harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights.
2. The PCB Abatement Contractor shall be responsible for securing all necessary permits for work under this Section, including hauling, removal, and disposal, fire, and materials usage, or any other permits required to perform the specified work.

1.15 QUALITY ASSURANCE

A. The PCB Abatement Contractor shall provide and assure that the quality of work practices and procedures to be utilized are consistent with the above listed agencies and regulations. PCB Abatement Contractor shall utilize the latest edition, including all addenda, revisions and supplements for all regulatory agencies codes, etc.

B. Worker's Qualifications: The persons performing PCB abatement and their supervisors shall be personally experienced in PCB abatement work and shall have been regularly employed by a company performing PCB abatement for a minimum of 3 years.

C. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Owner at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.

1. The conference shall be attended by the PCB Abatement Contractor, and the Owner's Authorized Representative employed by the Owner. This pre-abatement meeting may consist of multiple meetings.

1.16 MINIMUM REQUIREMENTS FOR WORKER HEALTH AND SAFETY

A. The PCB Abatement Contractor is responsible and liable for the health and safety of all onsite personnel, occupants of adjacent properties and the offsite community affected by the project. All onsite 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 at all times. The PCB Abatement Contractor'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.

B. 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 Sub Contracts without compromise or prejudice to the rights of the Owner or the Owner's Authorized Representative.

C. Any discrepancies between the PCB Abatement Contractor'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.

D. In addition to exposure concerns relating to the presence of PCBs, other health and safety considerations will apply to the work. The PCB Abatement Contractor shall be responsible for recognizing such hazards and shall be responsible for the health and safety of PCB Abatement Contractor employees at all times. It is the PCB Abatement Contractor's responsibility to comply with all applicable health and safety regulations.

E. The HASP shall be reviewed by all persons prior to entry into the abatement, decontamination, or waste staging areas, whether a representative of the PCB Abatement Contractor, owner,

architect/engineer, environmental consultant, subcontractor(s), waste transporter or federal, state or local regulatory agency. Such review shall be acknowledged and documented by the PCB Abatement Contractor's Health and Safety Officer by obtaining the name, signature and affiliation of all persons reviewing the HASP.

F. 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.

G. The PCB Abatement Contractor'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.

1.17 WORK AREAS AND ZONES

A. The PCB Abatement Contractor shall lay-out 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 interior and exterior areas where removal of PCBs and other Toxic or Hazardous Substances and waste handling and staging activities are on-going and the immediately surrounding locale or other areas where contamination could occur. The Abatement Zone for purposes of interior and exterior removal of PCB materials or other Toxic or Hazardous Substances for disposal shall be performed within a containment to isolate work areas from non-work areas. The containment shall be visibly delineated with appropriate warning signs at all approaches to Abatement (including a PCB ML marker), and be restricted from access by all persons except those directly necessary for the completion of the respective abatement tasks. The Abatement Zone shall be located and delineated as necessary to limit access to the abatement area and to minimize risk of exposure to site workers and the general public. Access shall be controlled at the periphery of the Abatement Zone to regulate the flow of personnel and equipment into and out of the zone and to help verify that proper procedures for entering and exiting are followed. All persons within the Abatement Zone shall wear the appropriate level of protection established in the HASP.

2. Decontamination Zone: The Decontamination Zone is the transition zone between the abatement area and the clean support zone of the project site, and is intended to reduce the potential for contaminants from being dispersed from the Abatement Zone to clean areas of the site. The Decontamination Zone shall consist of a buffer area surrounding the 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 constructed as a three chamber decontamination unit for workers and a two chamber equipment room for waste load out as detailed in Section 3.4. All emergency response and first aid equipment shall be readily maintained in this Zone. 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 Zone 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 abatement work and which have reviewed and signed the HASP.

1.18 PERSONNEL PROTECTIVE EQUIPMENT

A. The PCB Abatement Contractor 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 PCB Abatement Contractor's employees from all hazards present.

B. The PCB Abatement Contractor 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 PCB Abatement Contractor shall establish in the HASP criteria for the selection and use of personal protective equipment (PPE).

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 PCB Abatement Contractor 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 PCB Abatement Contractor 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 PCB Abatement Contractor as required for workers and authorized visitors.

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

1.19 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

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

1. Fire Extinguishers: A minimum one (1) fire extinguisher shall be supplied and maintained at the site by the PCB Abatement Contractor 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 PCB Abatement Contractor throughout the duration of the project.

3. Communications: Telephone communications (either cellular or land line) shall be provided by the PCB Abatement Contractor for use by site personnel at all times during the project.

B. The Health and Safely 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 Authorized Representative.

1.20 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 PCB Abatement Contractor 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 exiting 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 PCB Abatement Contractor 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 sealed DOT approved 55-gallon barrels for off-site disposal.

5. Respirators, if necessary due to an upgrade to Level C PPE, 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, illicit drugs or firearms will be allowed on the site at any time.

9. 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.

10. 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 Health and Safety Officer in the case of an emergency.

B. Workers must wear protective suits, protective gloves, eye protection and a minimum of half-face respirator with HEPA filter cartridge for all projects. Respiratory protection shall be in accordance with OSHA regulation 1910.134 and ANSI Z88.2.

C. Workers must be trained as per OSHA and USEPA requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.

1. A personal air sampling program shall be in place as required by OSHA. 2. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

1.21 INDEPENDENT INSPECTION AND MONITORING

A. This section describes independent visual inspection and monitoring work being performed on behalf of the Owner. This work is not in the Contract Sum. This section describes monitoring carried out by the Owner's Consultant (SLR) to verify that the building beyond the work area and the outside environment remains uncontaminated.

B. The purpose of the Owner's Consultant's monitoring is to detect faults in the work area isolation such as:

1. Contamination of the building outside of the work area by PCB dust. 2. Failure of filtration or rupture in the differential pressure system as applicable. 3. Contamination of the outside of the containment.

C. Should any of the above occur, the PCB Abatement Contractor shall immediately cease removal activities until the fault is corrected. Do not recommence work until authorized by the Owner's Consultant.

D. The Owner's Consultant may monitor the Work Area. The purpose of this monitoring will be to detect dust outside containment, which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination.

E. The Owner's Consultant will perform on-site monitoring throughout the course of the project, as follows:

1. All work procedures shall be continuously monitored by the Consultant to assure that areas outside the designated work locations in the buildings will not be contaminated.

2. Prior to work on any given day, The PCB Abatement Contractor's designated "competent person" shall discuss the day's work schedule with the Consultant to 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 of the building or the employees.

PART 2 - PRODUCTS

2.01 ABATEMENT PRODUCTS

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 PCBs shall be decontaminated or disposed of as PCB waste.

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

1. Type: Minimum 6 mil., opaque, fire retardant polyethylene sheets.

2. Floor/Ground Protective Layer: Minimum 10 mil., reinforced polyethylene sheets.

D. Respirators:

1. Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

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

F. 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.

G. Cleaning Products: Contractor shall at their discretion utilize specialty cleaning products such as Capsur, TechXtract or other cleaners for use in decontaminating porous and nonporous surfaces to remain. All such products shall be utilized in accordance with manufacturer's specifications as intended. PCB Abatement Contractor shall ensure appropriate use and disposal associated with use in accordance with the SDS sheets for each product utilized. It shall be incumbent upon the PCB Abatement Contractor to determine the need for use of specialty products to meet required cleaning verification levels established herein and in accordance with the SIP or Performance Based Plan.

H. The PCB Abatement Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with PCBs.

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

2.02 TOOLS AND EQUIPMENT

A. The PCB Abatement Contractor shall provide a sufficient supply of disposable mops, rags, and sponges for work area cleaning and decontamination shall be available.

B. The PCB Abatement Contractor shall provide a sufficient supply of scaffolding, ladders, lifts, and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed.

C. The PCB Abatement Contractor shall provide all tools and equipment necessary for PCB removal.

D. The PCB Abatement Contractor's air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

E. The PCB Abatement Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape and air filters.

F. The PCB Abatement Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a State of Connecticut licensed electrician.

G. The PCB Abatement Contractor shall have available shower stalls and plumbing to support same to include sufficient hose length and drain system or an acceptable alternate and supply temporary water/connections as needed.

H. 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 enclosure with respect to outside area. Equipment shall be checked for proper operation by smoke tubes or 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.

I. Vacuum units, of suitable size and capacities for the 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.

2.03 PERSONNEL PROTECTION

A. Safety equipment (e.g., hard hats meeting the requirements of ANSI Standard 289.11981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves or other work gloves), shall be provided to all workers and authorized visitors.

B. Non-skid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

PART 3 - EXECUTION

3.01 WORK AREA PROTECTION — ABATEMENT ZONE GENERAL

A. Protection of Existing Construction: Perform PCB Bulk Product Waste and PCB Remediation Waste removal work without damage or contamination of adjacent areas, asphalt and/or concrete paving, soils, and existing construction.

B. Prior to commencement of PCB abatement activities at each work area, a containment system shall be constructed by the PCB Abatement Contractor to capture and contain all materials removed during the abatement. Containment procedures referenced for the abatement zone must be utilized for PCB Bulk Product Waste removal.

C. During all remediation activities, PCB Abatement Contractor shall maintain control of all entrances and exits to the work areas to ensure only authorized personnel enter the work areas and are afforded proper personal protective equipment and as required respiratory protection. All approaches to work areas shall be demarcated with appropriately worded warning signs.

D. Work zones shall be established in accordance with this section to include abatement zone, decontamination zone, and support zone.

3.02 WORK AREA PROTECTION — ABATEMENT ZONE FOR PCB BULK PRODUCT

A. Ground protection to prevent debris from escaping the abatement zone and to protect areas outside of abatement zone from PCB contamination shall be utilized. Solid barriers shall be installed along

abutting properties. Protection shall include the use of water impervious membrane covering which shall be secured to the ground surface. Edges shall be raised to prevent water run-off used for dust control during cutting and demolition of structures. The membrane shall be covered with layers of 10-mil reinforced polyethylene sheeting securely fastened to foundation. All abatement will occur with multiple layers of 10-mil reinforced polyethylene sheeting protected, leak tight (water) as well as fire rated plywood and wood 2'x4's for areas with solid barriers.

B. Ground protection and isolation barriers shall remain in place throughout work to collect dust and debris resulting from PCB Bulk Product Waste removal. No water run-off is allowed.

C. All debris generated during operations shall be HEPA vacuumed continuously throughout the work shift and at the end of a work shift to avoid accumulation. Any tears or rips that occur in protections shall be repaired or removed and replaced with new protections.

D. All surfaces adjacent to materials removed shall be properly decontaminated upon completing the removal of PCB Bulk Product Waste.

E. Warning Signage: Post warning signs in accordance with 29 CFR 1910.1200 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the PCB ML markers at each entrance to the work area.

F. Waste Containers for PCB Bulk Product Waste: Appropriate PCB waste containers shall be placed adjacent to abatement zones. Containers shall be lined covered and secured. The PCB waste containers shall be properly marked as described in 40 CFR part §761.40. Marking shall include a PCB ML marker formatted in accordance with 40 CFR part §761.45.

3.03 DECONTAMINATION ZONE

A. The PCB Abatement Contractor shall establish contiguous to the work area, a decontamination enclosure consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure. The PCB Abatement Contractor shall ensure that employees enter and exit the Abatement Zone through the decontamination area.

B. Access between rooms in the decontamination system shall be through double flap curtain opening airlocks. The clean room, shower and equipment room within the decontamination enclosure, shall be completely sealed ensuring that the sole source of airflow through this area originates from uncontaminated areas outside the work area.

C. Construct the decontamination systems with wood or metal framing, 3/8" sheathing and cover both sides with a double layer of six (6) mil polyethylene sheeting, spray glued or taped at the joints. Caulk joints watertight at floor, walls, and ceiling.

D. The PCB Abatement Contractor shall visually inspect interior and exterior critical barriers several times daily to assure effective seal and the PCB Abatement Contractor shall repair defects immediately.

E. Equipment room: The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

F. Shower area: Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3). The showers shall be adjacent both to the equipment room and the clean room.

G. Clean change room: The clean room shall be equipped with a locker or appropriate storage container for each worker's use. Following showering, each worker must then change into street clothing in clean change areas.

H. Decontamination area entry procedures: The PCB Abatement Contractor shall ensure that all workers follow proper decontamination procedures for entry into a Regulated Work area including but not limited to the following:

1. Enter the decontamination area through the clean room;
2. Remove and deposit street clothing within a locker provided for their use;
3. Put on protective clothing and respiratory protection before leaving the clean room.
4. Before entering the Abatement Zone, the PCB Abatement Contractor shall ensure that workers pass through the equipment room.

I. Decontamination area exit procedures: The PCB Abatement Contractor shall ensure that all workers follow proper decontamination procedures for exit from a Regulated Work area including but not limited to the following:

1. Before leaving the regulated area, workers shall remove all gross contamination and debris from their protective clothing.
2. Workers shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.
3. Workers shall not remove their respirators in the equipment room.
4. Workers shall shower prior to entering the clean room.

5. After showering, workers shall enter the clean room before changing into street clothes.

J. Equipment Room for Waste Removal: The PCB Abatement Contractor shall establish a two chamber equipment room or area that is adjacent to the Abatement Zone for the decontamination of waste containers and equipment as noted above.

1. The area must be of sufficient size as to accommodate cleaning of equipment and removing waste without spreading contamination beyond the area (as determined by visible accumulations).

2. All equipment and surfaces of containers filled with PCB waste must be cleaned prior to removing them from the equipment room or area.

3.04 PCB BULK PRODUCT MATERIAL REMOVAL - APPLIES IF VERIFICATION SAMPLING FOUND >1 PPM

A. PCB Bulk Product Waste Materials including all interior/exterior systems/materials/components that were tested/analyzed and determined/assumed to be PCB as part of this project, and adjacent foundation/floor/ground materials (as applicable) shall be handled and removed from specified locations for proper disposal. Bulk Product Waste may also include up to 12 inches of adjacent building materials per the EPA PCB Bulk Waste Reinterpretation Memorandum dated October 24, 2012.

B. Materials shall be removed in a manner which does not breakdown the materials into fine dust or powder to the extent feasible. Equipment and tools to be utilized shall include hand tools and mechanical equipment such as demolition hammers to remove materials from adjacent substrates. Mechanical removal equipment shall as appropriate be fitted with dust collection systems.

C. Any dry or brittle materials shall be removed with additional engineering controls such as use of a HEPA vacuum to remove accumulated dust or debris during removal.

D. Sequence of removal for the interior/exterior materials shall follow the following general requirements:

1. Site preparation and controls shall be completed. Work shall not proceed until authorized by owner's representative.

2. Interior/exterior systems/materials/components, attached damp-proofing (if applicable), paints, and adjacent window and door components/systems shall be removed in their entirety for disposal as PCB Bulk Product Waste as well as adjacent building materials, if applicable (roofing, foundations, floor and ground materials), removed with the bulk product. The removal of the systems shall be performed so that the bulk materials are not disturbed, or a little as possible by remediation/demolition activities.

E. Waste shall be immediately containerized in appropriately polyethylene lined dumpsters.

F. The use of minimal quantities of water to moisten the generated dust prior to collection shall be utilized. Under no circumstances shall the PCB waste show evidence of free liquid water, pooling or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with40 CFR Part §761.60 (a).

G. PCB Bulk Product Waste shall be stored for disposal in accordance with 40 CFR Part §761.65 and marked in accordance with 40 CFR Part §761.40 and §761.45.

H. All waste containers shall be appropriately labeled in accordance with 40 CFR Part §761.40 and §761.45. Labeling shall include the PCB ML marker.

3.05 PCB REMEDIATION WASTE — ADJACENT GROUND/FLOORING/ FOUNDATION MATERIALS – APPLIES IF VERIFICATION SAMPLING FOUND >1 PPM

A. All adjacent components (if fails verification sampling) shall be removed, excavated (in containments) and transported off-site for disposal as PCB Remediation Waste. This includes asphalt/soil/concrete/flooring/wall/roofing and other adjacent materials and will be performed at no extra cost to the owner.

B. Adjacent components/building materials/ground material removal shall be competed in accordance with 40 CFR Part §761.61(a). The remediation goal is to remove PCB-contaminated materials to meet clearance concentration of <1 ppm at no extra cost to the building owner.

C. Post removal verification sampling shall be conducted by Consultant, in all areas to demonstrate that the cleanup goals have been met.

D. Asphalt and soil shall be excavated from foundation and depth specified in the Performance Based Clean-Up and Disposal Plan (if testing determines it's applicable).

E. During excavation work (if needed), use of wetting to control dust and visible emissions shall be required.

F. All PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.65.

G. All waste containers shall be appropriately labeled in accordance with 40 CFR Part §761.40 and §761.45. Marking shall include the PCB ML marker.

H. Soil excavations will be backfilled with certified clean soil meeting the CTDEEP Remediation Standards Regulations (RSRs) for the Residential Direct Exposure Criteria (RDEC) and Groundwater Classification A (GB) Pollutant Mobility Criteria (PMC). Asphalt excavations shall be replaced in kind, if applicable. Additionally brushes removed during soil excavation shall be replaced in kind.

1. Scope for soil sample collection:

    a. Owner's Representative will review the characterization data of soil being brought onsite

    b. Collect one composite soil sample (made up of three sample locations) for every 500 cubic yards (CY) of material planned to be brought to the site for use as clean fill.

2. Laboratory analysis of soil characterization shall include the following:

    a. Volatile Organic Compounds (VOCs by method 8260)

    b. Polynuclear Aromatic Hydrocarbons (PAHs by method 8270)

    c. Extractable Total Petroleum Hydrocarbons (ETPH)

    d. Polychlorinated Biphenyls (PCBs by method 8082)

    e. Pesticides and Herbicides (by method 8081)

    f. RSR metals (Mass and SPLP)

3.06 CLEANING AND DECONTAMINATION

A. The PCB Abatement Contractor shall be responsible for complete cleaning and decontamination of the Abatement Zone upon completion of work. The Abatement Zone will be required to meet proposed Verification Sampling limits established in the PIP.

B. The PCB Abatement Contractor shall utilize HEPA vacuum and wet cleaning products to remove all visible dust and debris from all surfaces within the work area. If specialty products are utilized the PCB Abatement Contractor shall utilize in accordance with manufacturer's specifications including any additional safety and disposal requirements for such use.

C. Cleaning of work areas shall be performed, decontamination units and negative air filtration devices in place until results of post verification sampling indicate acceptable limits. Cleaning shall be performed throughout.

D. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with §761.60 (a).

E. All rags and other cleaning materials used to clean shall also be properly disposed as PCB Remediation Waste. All PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.65. All waste containers shall be appropriately marked in accordance with 40 CFR Part §761.40 and §761.45.

F. Equipment to be utilized in connection with the removal of PCB Bulk Product Waste and PCB Remediation Waste including waste collection or that will or may come in direct contact with the site contaminants shall be decontaminated prior to leaving the site to prevent migration of the contaminated residues from the project site. Decontamination shall be in accordance with 40 CFR Part §761.79 and Subpart S procedures.

G. All non-disposable equipment and tools employed in the course of the project will be decontaminated at the conclusion of each work day through the following sequence:

H. Initial tap water rinse, to remove gross contaminants

1. Tap water and hexane or equivalent wash
2. Tap water rinse
3. Second tap water and hexane or equivalent wash
4. Second tap water rinse

I. The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon barrels for off-site disposal.

3.07 CONSULTANTS INSPECTION RESPONSIBILITIES

A. The Owner shall retain an industrial hygiene firm (Owner's Authorized Representative) to perform periodic inspections and sampling during the work. Site visits shall be scheduled based on the progress of the work and at critical time periods.

B. Consultant shall conduct inspections throughout the progress of the removal/remediation project. Inspections shall be conducted in order to document the progress of the removal work as well as the procedures and practices employed by the PCB Abatement Contractor.

C. The Consultant 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 abatement Contractor. The Consultant shall be informed 12 hours prior to the time the inspection is needed. If, during the course of the pre-commencement inspection, deficiencies are found, the PCB Abatement Contractor 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 Consultant. During the course of the work inspections, the Consultant shall observe the PCB Abatement Contractor's removal procedures, verify barrier integrity, assess project progress, and inform the abatement Contractor of specific remedial activities if deficiencies are noted.

D. The Owner's Authorized Representative may perform real time monitoring for dust particulate using Dust Trak or equivalent monitoring devices for total dust. Sampling may be performed prior to abatement for background comparison to during abatement sampling. In addition, air sampling outside of the Abatement Zone, may be performed periodically during active removal activities at the Owner's Authorized Representative's discretion for laboratory confirmation.

E. It should be noted that if the results of air samples exceed established action levels or ambient background conditions for real time monitoring whichever is less the PCB Abatement Contractor will be required to implement work stoppage to determine causes of exceeding results and as necessary utilize additional containment measures or engineering controls. Any resulting decontamination of areas beyond the Abatement Zone shall be responsibility of the PCB Abatement Contractor.

F. The Owner's Authorized Representative shall perform post removal and decontamination visual clearance inspection as necessary to determine complete removal of PCBs. Refer to the Performance Based Remediation and Disposal Plan for requirements for determination of clearance levels. Verification sampling will be performed on adjacent materials metal header lintel and ground materials.

G. Once verification sampling has documented the Abatement Zone meets required criteria established in the Performance Based Remediation and Disposal Plan, the PCB Abatement Contractor shall be permitted to remove decontamination unit, etc. These areas shall be subjected to a visual inspection to ensure no visible dust is present.

3.08 MARKING OF WASTE CONTAINERS

A. All waste containers must be marked 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. All waste containers must be marked with a PCB ML marker.

B. All waste containers containing PCB Bulk Product Waste, Bulk PCB Remediation Waste and PCB contaminated debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be labeled as follows:

DOT Class 9 UN3432 (solid)

Or UN2315 (liquid) PCB Waste

RQ

Waste for Disposal Federal law prohibits improper disposal.

If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator's Information:

Manifest Tracking No.:

Accumulation Start Date:

EPA ID No.:

EPA Waste No.:

Total Weight:

Container No.:

HANDLE WITH CARE!

In addition, these containers must be marked with a PCB ML marker.

C. 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; unobscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.09 ON-SITE WASTE MANAGEMENT AND DISPOSAL OF SOLID HAZARDOUS WASTES

A. All solid waste material, containment system components, used 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 DOT-approved 55-gallon barrels.

B. The PCB Abatement Contractor shall be responsible for all packaging, labeling, transport, disposal and record-keeping associated with PCB or PCB contaminated waste in accordance with all federal, state and local regulations.

C. The PCB Abatement Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.

D. The PCB Abatement Contractor shall provide to the transporter at the time of transfer appropriate shipping records or uniform waste manifests as required by the federal, state and local regulations with a copy to the Owner and Owner's Authorized Representative.

E. PCB Abatement Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated waste site in a timely manner and in accordance with all federal, state and local regulations.

F. The PCB Abatement Contractor shall assure that disposal of polychlorinated biphenyls (PCB) containing waste material is at a facility approved to accept such waste and shall provide a tracking/manifest form signed by the landfill's authorized representative.

G. If roll-off containers are to be utilized for containerization of the abatement wastes the following shall apply:

1. 1. All roll-off containers or other similar vessels utilized shall be watertight and lined with 6-mil (minimum) polyethylene sheeting or equivalent impermeable lining, and equipped with a secured and impermeable cover.

2. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The PCB Abatement Contractor shall be responsible for ensuring that the cover remains securely intact until the container is removed from the site.

H. 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 be securely covered and sealed at the conclusion of each work day.

I. 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.

J. A waste roll-off and barrel staging area shall be designated prior to initiation of the abatement work, and approved by the Owner's Authorized Representative. If this area is located outside of

the building, the area (or areas) shall be surrounded by a chain-link fence with a minimum height of six feet. The fence shall be labeled with a PCB ML marker.

K. Properly containerized waste must be transported by a licensed hauler and shipped as PCB Bulk Product Waste for disposal at a permitted soil waste facility in accordance with 761.62(b).

L. Bulk PCB Remediation Waste must be transported by a licensed hauler and shipped as PCB Remediation for disposal in accordance with 40 CFR 761.61(b) at a facility permitted by the EPA at a hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA or a chemical waste landfill approved under 40 CFR 761.75 which is an EPA, TSCA approved facility for PCB Remediation Waste. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.

M. Properly containerized waste must be transported by a licensed hauler and shipped as PCB Remediation Waste <50 ppm for disposal at either a facility permitted by a State to manage non-municipal hazardous waste, a EPA permitted hazardous waste landfill, or a PCB disposal facility. Provide required copies of the uniform waste manifests for PCB Remediation Waste <50 ppm to the Owner, waste generation State and waste destination State as required.

N. Any PCB Liquid Water Waste shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with 40 CFR Part §761.60 (a).

O. Any chemicals, solvents or other products used during decontamination shall be properly containerized as PCB Liquid Waste. Waste must be properly decontaminated or disposed in accordance with 40 CFR Part §761.60 (a) or 40 CFR Part §761.79 (g). PCB Liquid Waste shall be transported by a licensed hauler and shipped for treatment or disposal. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.

P. All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the material.

Q. Transporters of the waste are prohibited from "back hauling" any freight after the disposition of the Owner's waste stream until decontamination of the vehicle and/or trailer is assured.

END OF SECTION 02 84 32

SECTION 31 01 01 - SITE RESTORATION

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Provide an accepted uniform stand of established perennial turf grasses by furnishing and placing fertilizer, seed and mulch on all disturbed areas. All work shall conform to the requirements of CTDOT Form 817 Section M.13.04.

1.02 DELIVERY STORAGE AND HANDLING

A. Deliver fertilizer in manufacturer's standard size bags or cartons showing weight, analysis, and the name of the manufacturer. Store as approved by Owner's Representative.

B. Store all seed at the site in a cool dry place as approved by the Owner's Representative. Replace any seed damaged during storage.

1.03 SCHEDULING

A. Time For Seeding: Sow grass seed between March 15th and June 15th or between August 15th and October 15th, except as otherwise approved in writing by the City's representative.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. Topsoil shall conform to the requirements of CTDOT Form 817 - Section M1.13.01.

2.02 AGRICULTURAL GROUND DOLOMITIC LIMESTONE

A. Ground limestone shall conform to the requirements of CTDOT Form 817 - Section M.13.02.

2.03 FERTILIZER

A. Fertilizer shall conform to the requirements of CTDOT Form 817 - Section M.13.03.

2.04 SEED

A. Seed mixtures shall conform to the requirements of CTDOT Form 817 - Section M.13.04.

2.04 MULCH

A. Mulch shall conform to the requirements of CTDOT Form 817 - Section M.13.05.

PART 3 - EXECUTION

3.01 GRADING

A. Rough Grading: Trim and grade lawn areas within the Contract Limit to a level of 6 inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

B. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:

1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.

3.02 SPREADING TOPSOIL

A. Perform topsoil spreading operations only during dry weather.

B. To ensure a proper bond with the topsoil, harrow or otherwise loosen the subgrade to a depth of 3 inches before spreading topsoil.

C. Spread topsoil directly upon prepared subgrade to a minimum depth measuring 3 inches after natural settlement in areas to be seeded. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material. Finished surfaces shall conform to the contour lines and elevations indicated on the drawings or fixed by the Owner's Representative.

3.03 PREPARATION FOR SEEDING

A. Seed Bed: Scarify soil to a depth of 2 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material.

3.04 FERTILIZING

A. Apply fertilizer evenly at a minimum rate of 320 pounds per acre.

3.05 SEEDING

A. Assume all risks when seed is sowed before approval of seed analysis.

B. Do not seed when the wind velocity exceeds 5 miles per hour.

C. Application Rate: no less than 175 pounds per acre.

D. Dry Application: Sow seed evenly by hand or seed spreader on dry or moderately dry soil.

3.06 MULCHING

A. Dry Application: Immediately after seeding, cover the seeded areas with a uniform blanket of hay mulch at the rate of 50 pounds per 1000 sq ft of seeded area.

3.07 LAWN ESTABLISHMENT

A. Water and protect all seeded areas until final acceptance of the lawn.

3.08 FINAL ACCEPTANCE

A. Final acceptance of seeded areas will be granted when a uniform stand of acceptable grass is obtained, with a minimum of 95 percent coverage. Portions of the seeded areas may be accepted at various times at the discretion of the Owner's Representative.

B. Unacceptable seeded areas, dry application: Reseed as specified and fertilized at one-half the specified rate.

C. Once accepted, the owner will assume all maintenance responsibilities.

END OF SECTION 31 01 01

SECTION 31 20 00 - EARTH MOVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Preparing subgrades for pavements.
2. Excavating and backfilling for buildings and structures.
3. Properly managing excavated native soil for reuse on-site.
4. Subbase course and base course for asphalt paving.

1.03 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.
3. Structural Backfill: Backfill shall be placed and compacted in 6” layers.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course/Crushed Stone: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Existing Fill: General term for previously imported, non-native soil materials that currently exist at the project site and that may or may not have been installed using quality control procedures.

H. Fill: Soil materials used to raise existing grades.

I. Ordinary Fill: General fill and backfill placed outside the limits of Structural Fill, Sand and Gravel, and Crushed Stone.

J. Proof-Roll: The application of compactive energy to subgrade for the geotechnical engineer's evaluation of suitability of subgrade for bearing.

K. Sand and Gravel: Fill placed over the excavated subgrade before placing crushed stone slab-on-grade base course.

L. Granular Fill: Fill placed to in all areas of excavation due to the building removal.

M. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

N. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

O. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

P. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.04 INFORMATIONAL SUBMITTALS

A. Material Test Reports: For each borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.

2. Laboratory compaction curve according to ASTM D 698.

B. Pre-excavation Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.05 QUALITY ASSURANCE

A. Workmen: all workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Form 817 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2016 edition shall be used for material compliance and execution of the work in this section.

1.06 FIELD CONDITIONS

A. Visit the site to review all details of the work and working conditions and to verify dimensions in the field including headroom and interferences from adjacent structures. Notify the Engineer in writing of any discrepancy before performing any work.

B. Consult official records of existing utilities, both surface and subsurface, and their connection to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work.

1. Utility Locator Service: Notify **"Call Before You Dig"** for area where Project is located before beginning earth-moving operations.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

D. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

E. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in are in place.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within two percent (2%) of optimum moisture content at time of compaction.

D. Subbase Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least ninety percent (90%) passing a 1½-inch sieve and not more than twelve percent (12%) passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least ninety-five percent (95%) passing a 1½-inch sieve and not more than eight percent (8%) passing a No. 200 sieve.

F. Granular Fill: This material shall be used as a foundation for structures, to replace unstable material in slopes, as a foundation for sidewalks and culverts, in shoulders and elsewhere as indicated on the plans, required by the specifications or ordered by the Engineer. Granular fill shall conform to CT DOT Form 816 Article M.02.01.

G. Ordinary Fill: General fill and backfill placed outside the limits of Structural Fill, Sand-Gravel, and Crushed Stone. Ordinary Fill shall be friable soil, free of rubbish, ice, snow, tree stumps, roots, and other organic matter; no stone greater than two thirds loose lift thickness.

H. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe. Bedding Course shall consist of Sand free of silt, clay, loam, and organic matter. Bedding material shall pass a 3/8-inch sieve, with not more than ten percent (10%) passing a No. 200 sieve.

I. Sand: ASTM C 33; fine aggregate.

J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

PART 3 - EXECUTION

3.01 PREPARATION

A. Identify and flag structures, utilities, sidewalks, pavements, and other facilities and protect from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. Maintain and protect existing utilities remaining which pass through work area.

1. Contractor shall contact "Call-Before-You-Dig" for underground utilities information a minimum of seventy-two (72) hours prior to start of demolition. Contractor shall obtain all available underground utility information from the Owner prior to excavation. Contractor shall locate all known utilities prior to excavation and shall repair/replace all damage, by the Contractor at no extra to the Owner. Utilities damaged by the Contractor shall be repaired.

B. Carefully support and protect from damage all existing pipes, poles, wires, fences, curbings, property line markers and other structures, which the Owner decides must be preserved in place without being temporarily or permanently relocated. Should such items be damaged, they shall be restored by the Contractor, without compensation, to at least as good condition as that in which they were found immediately before the work was begun.

C. Protect and maintain erosion and sedimentation controls during earth-moving operations.

D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.02 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.03 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.04 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building pavements with pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation or change in Contract Time.

3.05 STORAGE OF SOIL MATERIALS ND PROTECTION OF SUBGRADE

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

B. Dewater to maintain water at least 2 feet below bottom of all excavations.

C. Protect all subgrade soils. Excavate disturbed subgrade and backfill in accordance with specifications at Contractor's expense.

D. Excavate soil and all other materials required to accommodate building foundations, slabs, paving and site structures, and construction operations.

E. Do not excavate to full depth when freezing temperatures may be expected unless subgrade is protected from freezing or footings or slabs can be placed immediately after excavation is completed and are protected from freezing.

F. Maintain safe and stable banks.

G. Excavate in a manner that will not disturb existing foundations. Plans for excavating near existing foundations shall be submitted to the Architect for approval prior to beginning such excavation.

H. Correct unauthorized excavations at no additional cost to the Owner or change in Contract Time.

I. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.06 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. To fill in existing basements of buildings removed
2. Under walks and pavements, use satisfactory soil material.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.07 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within two percent (2%) of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.08 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at ninety-five percent (95%).

3.09 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades. 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Grading inside Building Lines: Finish subgrade to a tolerance of ½ inch when tested with a 10-foot straightedge.

C. Final grade shall be established in the field as directed by the Engineer. This shall occur during the initial site meeting attended by the Engineer, the General Contractor, and the Owner. The Engineer shall specify the elevation referenced to the existing grade. The General Contractor shall establish a reference benchmark for the final grade elevation at the nearest applicable benchmark approved by the Owner.

3.10 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement.
2. Shape subbase and base course to required crown elevations and cross-slope grades.
3. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
4. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
5. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than ninety-five percent (95%) of maximum dry unit weight according to ASTM D 698.

3.11 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions at no additional compensation or change in Contract Time.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 20 00

SECTION 31 25 13 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Site Restoration: Section 310101.

B. Structure Demolition: Section 024116.

1.02 REFERENCES

A. Erosion and Sediment Control Guidelines: Conform to the latest edition of "Connecticut Erosion and Sediment Control Guidelines for Urban and Suburban Areas" by Connecticut Department of Environmental Protection. Refer to these guidelines for construction and maintenance of all items (Temporary and Vegetative).

1.03 RESPONSIBILITY

A. Install and maintain the temporary storm water and diversion control items as shown on the drawings before starting any grading or excavation and maintain compliance of all Storm Water Pollution regulations. Provide any temporary sediment and erosion control measures that may be required within limits of the work, including any staging areas, throughout construction in conformance with the plan, and as directed by the Owner's Representative. Place the permanent control practices required before the removal of the temporary storm water diversion and control items.

B. During construction conduct operations in such a manner as to prevent or reduce to a minimum any damage to any water body from pollution by debris, sediment, chemical or other foreign material, or from the manipulation of equipment and/or materials in or near a stream or ditch flowing directly to a stream. Any water which has been used for wash purposes or other similar operations which become polluted with sewage, silt, cement, concentrated chlorine, oil, fuels, lubricants, bitumens, or other impurities shall not be discharged into any water body.

C. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.

1.04 DESCRIPTION

A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control measures as shown on the contract documents or as ordered The work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control

measures as shown on the contract documents as ordered by the Owner Representative during the life of the contract to provide erosion and sediment control.

B. Temporary structural measures provide erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion. These are used during construction to prevent offsite sedimentation. Temporary structural measures shall include check dams, construction road stabilization, stabilized construction entrance, dust control, earth dike, level spreader, perimeter dike/swale, pipe slope drain, portable sediment tank, rock dam, sediment basin, sediment traps, silt fence, storm drain inlet protection, straw/hay bale dike, access waterway crossing, storm drain diversion, temporary swale, turbidity curtain, water bars or other erosion control devices or methods as required.

C. Vegetative measures shall include brush matting, dune stabilization, grassed waterway, vegetating waterway, mulching, protecting vegetation, seeding, sod, straw/hay bale dike, stream bank protection, temporary swale, topsoil, and vegetating waterways.

D. All weekly, monthly and quarterly inspections will be completed by the Owner's Representative. Comply with and correct all deficiencies found as a result of these inspections. At the end of the construction season when soil disturbance activities will be finalized or suspended until the following spring the frequency of the inspections may be reduced. If soil disturbance is completely suspended and the site is properly stabilized, a minimum of monthly inspections shall be maintained. During this reduced frequency inspections still must be done after every storm event of .5 inches or greater. The stabilization activities must be completed before snow cover or frozen ground. If vegetation is required, seeding, planting and/or sodding must be scheduled to avoid die-off from fall frosts and allow for proper germination/establishment. Weekly inspections must resume no later than March 15.

1.05 DEFINITIONS – TEMPORARY STRUCTURAL MEASURES

A. Check Dam: Small barrier or dam constructed of stone, bagged sand or gravel to reduce velocity of flow.

B. Construction Road Stabilization: Stabilization of construction roads to control erosion.

C. Stabilized Construction Entrance: A stabilized pad of aggregate underlain with geo-textile where traffic enters a construction site to reduce or eliminate tracking of sediment to public roads.

D. Dust Control: Prevent surface and air movement of dust from disturbed soil surfaces.

E. Earth Dike: A temporary berm or ridge of compacted soil, located to channel water to a sediment trapping device.

F. Level Spreader: A non-erosive outlet for concentrated runoff to disperse flow uniformly across a slope.

G. Perimeter Dike/Swale: A temporary ridge of soil excavated from an adjoining swale located along the perimeter of the site or disturbed area to prevent runoff from entering a disturbed area and preventing sediment laden runoff from leaving a construction site.

H. Pipe Slope Drain: A structure placed from the top of a slope to the bottom of a slope to convey runoff without causing erosion.

I. Portable Sediment Tank: A compartmented tank to which sediment laden water is pumped to retain sediment before pumping the water to adjoining drainage ways.

J. Rock Dam: A rock embankment located to capture sediment.

K. Sediment Basin: A barrier constructed across a drainage way to intercept and trap sediment.

L. Sediment Traps: A control device formed by excavation to retain sediment at a storm inlet or other points of collection.

M. Silt Fence: A barrier of geo-textile fabric installed on contours across the slope to intercept runoff by reducing velocity. Replace after 1 year.

N. Storm Drain Inlet Protection: A semi-permeable barrier installed around storm inlets to prevent sediment from entering a storm drainage system.

O. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.

P. Access Waterway Crossing: A structure placed across a waterway to provide circulation for construction purposes.

Q. Storm drain Diversion: The redirection of a storm drain line or outfall channel for discharge into a sediment trapping device.

R. Temporary Swale: A temporary excavated drainage swale.

S. Turbidity Curtain: A flexible, impenetrable barrier used to trap sediment when construction occurs within water bodies or along a shoreline.

T. Water Bars: A ridge or channel constructed diagonally across a sloping road or right-of-way.

1.06 DEFINITIONS – VEGETATIVE MATERIALS MEASURES

A. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as mulch for seedlings established in the bank.

B. Grassed or Vegetating Waterway: A parabolic or trapezoidal channel below adjacent ground level stabilized by vegetation to convey water without causing erosion.

C. Mulches: Hay, straw, wood cellulose, fiber mats, flexible growth medium and other materials approved by the Owner's Representative.

D. Protecting Vegetation: Protecting trees, shrubs, ground cover and other vegetation from damage.

E. Temporary Seeding: Erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.

F. Permanent Seeding: Grasses established and combined with shrubs to provide perennial vegetative cover on disturbed, denuded, slopes subject to erosion.

G. Sod: Used where a quick vegetative cover is required.

H. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.

I. Stream Bank Protection: Stabilization of eroding stream banks through use of vegetation.

J. Temporary Swale: A temporary excavated drainage swale.

K. Topsoil: Placed before permanent seeding or sod is installed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Seeding: Permanent see Section 310101.

2.02 COMPANIES-TEMPORARY STRUCTURAL

A. Mirafi, 365 South Holland Drive, Pendergrass, Ga, 30567, (888) 795-0808, www.mirafi.com.

B. North American Green, 14649 Highway 41 North, Evansville, IN 47725, (800) 772-2040, www.nagreen.com.

C. Siltdam Inc., P.O. Box 960, Brockton MA, 02303, (800) 699-2374, www.spilldam.com.

D. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, www.nedia.com.

E. Belton Industries, 5600 Oakbrook Parkway, Norcross GA., 30093, (800) 225-4099, www.beltonindustries.com.

F. KriStar, 1219 Briggs Ave., Santa Rosa, CA 95401, (800) 579-8819, www.kristar.com.

G. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, www.rolanka.com.

H. Apex Resources Inc., 12910 Shelbyville Road, Louisville, KY 40243 (888) 677-2739, www.apexr.com.

I. MonoSol, LLC, 707 E. 80th PL., Merrillville, IN 46410 (800) 237-9552, www.terraloc.com.

J. Brockton Equipment Inc., P.O. Box 960, Brockton, MA 02303 (800) 699-2374, www.spilldam.com.

K. Aer-Flo Inc., 4455 18th St. East, Bradenton, FL 34203 (800) 823-7356, www.aerflo.com.

L. Contech Construction Products Inc., 9025 Centre Point Drive, Suite 400, West Chester, Ohio 45069, (800) 338-1122, www.contech-cpi.com.

2.03 COMPANIES-VEGETATIVE

A. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, www.nedia.com.

B. Agrecol Corporation, 2918 Agriculture Drive, Madison, Wi, 53718, (608) 226-2544, www.agrecol.com.

PART 3 - EXECUTION

3.01 WORK AREAS

A. The Owner's Representative has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments. Under no circumstances will the area of erodible earth material exposed at one time exceed 50,000 sq. ft. The Owner's Representative may increase or decrease this area of erodible earth material exposed at one time as determined by his analysis of project, weather and other conditions. The Owner's Representative may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary, permanent, vegetative or biotechnical erosion control measures.

B. Schedule the work to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.

C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall, apply rye grass at a rate of 1 lb/ 1000 sq.ft. In late fall or early spring, apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydro-mulch at the manufacturer's recommended rate. Hay or straw shall be anchored.

D. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.

E. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.

F. After final stabilization has been achieved, temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

END OF SECTION 31 25 15

43 ANSON STREET
DERBY, CT

Asbestos Materials Survey

Prepared for:

City of Derby

Client Ref: SLR #141.11560.00137

October 2021

Asbestos Materials Survey

Prepared for:
City of Derby
1 Elizabeth Street, 2nd Floor
Derby, CT 06418

This document has been prepared by SLR International Corporation (SLR). The material and data in this report were prepared under the supervision and direction of the undersigned.

SLR did not conduct testing of below-grade materials, Lead-containing paint (LCP), polychlorinated biphenyls (PCB), or visual assessment of other regulated universal hazardous materials (*i.e.,* light ballasts, mercury switches, fluorescent light bulbs, door closures, motors with oil, et.).

Ryan D. Rouillard
Principal, Building Sciences

Keith Allard
Associate Building Sciences Specialist

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TABLES

APPENDICES

1. INTRODUCTION

SLR International Corporation (SLR) conducted an Asbestos Materials Survey (Survey) at 43 Ansons Street located in Derby, Connecticut (the "Site") on September 29, 2021. Per the request of the City of Derby, the assessment only concentrated on the possible presence of asbestos containing materials associated with the Site. AMC Environmental, LLC (AMC) previously conducted an asbestos inspection in August 2020. This supplemental assessment only concentrated on the possible presence of asbestos-containing building materials not yet tested, and materials requiring additional testing for confirmation purposes. Results of both surveys are included in this report.

BUILDING DESCRIPTION

The approximately 9,000 square feet (SF) multi-story wood structure was constructed atop concrete. Building spaces include, but are not limited to, bedrooms, basement mechanical rooms, bathrooms, kitchens, living rooms, dining rooms, and hallways. Finished materials SLR viewed were gypsum board wall/ceiling systems, hardwood floor systems (various systems are atop), carpet floor systems, wood and vinyl window systems, ceramic floor tile systems, and metal siding.

2. REGULATORY OVERVIEW

ASBESTOS

United States Environmental Protection Agency (USEPA) regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) regulates asbestos fiber emissions during demolition or demolition activities and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition activities. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable, or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos. Category II non-friable ACM are any materials other than Category I materials that contain more than 1 percent asbestos.

The Occupational Safety & Health Administration (OSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained at or below 0.1 asbestos fibers per cubic centimeter (f/cc) of air as an 8-hour time-weighted average (TWA) and not exceed 1.0 f/cc of air over a 30-minute time period known as an excursion limit (EL). The TWA and EL are known as OSHA's permissible exposure limits (PELs). The OSHA exposure limits (0.1 f/cc) of air as an 8-hour time-weighted average or 1.0 f/cc of air over 30 minutes (EL) for asbestos apply when materials containing 1 percent asbestos or less are disturbed during renovations or demolitions. The OSHA standard classifies construction and maintenance activities that could disturb ACM and specifies work practices and precautions that employers must follow when engaging in each class of regulated work. States that administer their own federally approved state OSHA programs may require additional precautions.

Friable ACMs and Category I and Category II nonfriable ACMs that are in poor condition and have become friable (crushed or pulverized during anticipated renovation or demolition activities) due to drilling, sanding, grinding, cutting, or abrading are considered Regulated Asbestos Containing Materials (RACM).

CT DPH regulations specify that non-friable materials with a "trace" result require the material to be disposed of as asbestos. If the material is friable (i.e., materials that may be easily reduced to a powder by applying hand pressure such as pipe/fitting insulation, plaster coats, etc.) during disturbance/ abatement, the USEPA, under the asbestos NESHAP regulation, requires that the material(s) be abated in accordance with the asbestos removal regulations (work to be performed in a controlled environment/containment). Materials containing less than 1% asbestos are not regulated by USEPA for removal practices, unless friable (or made friable during removal operations), at which point the materials are regulated for removal activities through NESHAP. However, the OSHA PEL and TWA over the EL for asbestos apply when materials containing 1% asbestos or less are disturbed during renovations or demolitions. A listing of materials that contain 1% asbestos or less is provided above to enable the demolition contractor to make appropriate decisions concerning compliance issues with applicable OSHA regulations.

3. FIELD ACTIVITIES

ASBESTOS

The asbestos survey was performed by Connecticut-licensed asbestos inspectors (license provided in Appendix B), Mr. Ryan Rouillard and Simon Hoey on September 29, 2021. The purpose of this survey was to supplement the previous AMC initial assessment (Appendix D). This was achieved by performing a document review of the known asbestos materials, identifying materials that were initially demonstrated to not contain asbestos, and establishing an appropriate sampling plan of materials to be tested to generally meet the protocols established in USEPA regulation 40 CFR 763. Access to the building and areas of interest was provided by the City of Derby.

Sample Collection

Random samples of suspect ACM were collected in each homogeneous area utilizing equipment such as, but not limited to, ladders and hand tools (*i.e.,* sledgehammers, screw-drivers, chisels, knives, flashlights, gloves, and prybars). Bulk asbestos samples were collected using wet methods, as applicable, to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

Sample Analysis

Suspect asbestos bulk samples (68) were submitted under chain of custody (COC) to EMSL Analytical, Inc. (EMSL) for analysis. Samples were analyzed by polarized light microscopy (PLM) with dispersion staining techniques per USEPA's Method for the Determination of Asbestos in Bulk Building Materials (600/R-93-116). The laboratory was instructed to analyze samples from each homogeneous area until the first sample containing asbestos was identified (*i.e.,* stop positive protocol). EMSL is accredited by the State of Connecticut for asbestos bulk sample analysis. The percentage of asbestos, where present, was determined by microscopic visual estimation. EMSL separated out multiple layers from some of the materials submitted and used the "stop at first positive" protocol; consequently, a total of 64 samples were analyzed. A copy of the EMSL laboratory analytical report and SLR's COC documentation are provided in Appendix A.

No other environmental sampling was conducted as part of the scope of work for this Survey.

4. FINDINGS

ASBESTOS

The materials listed in the tables below have been determined to contain asbestos in concentrations equal to or greater than 1 percent (%).

Table 1 - Identified Asbestos-Containing Materials and Estimated Quantities

Material Description	Location and Estimated Quantity[1]	Asbestos Analytical Result
Joint Compound[2, 3]	Throughout[2] – 25,000 SF	3-5%[2]
Roof Flashing at Parapet Wall[2]	Roof[2]/Beneath Parapet Cap (atop Asphalt System) – 275 SF	5-7%[2]
Mopcoat		1.4%
Roof Chimney Flashing[2]	Roof[2] – 10 SF	5-10%[2]
Roof Multi-layer Flat Roofing[2]	Roof[2] – 2,300 SF	5-7%[2]
Rolled Asphalt Shingle		3.2%
Asphalt Patch		5.7%
9"x9" Floor Tile	3rd Floor, Apt 5, Under Floating Wood Floor – 100 SF	2%

NOTE: SF = Square Feet, LF = Linear Feet

[1]Estimated quantities are based on a cursory field evaluation and actual quantities may vary significantly, especially due to ACMs being present in hidden areas not evaluated as part of this survey, covered by loose items, and/or inaccessible areas discovered during this survey (such as below-grade/below concrete floor slabs/foundation wall mastics, if applicable).

[2]AMC Environmental, LLC (Report Dated October 19, 2020) results

[3]Material has cross-contaminated surrounding areas/finish and substrate building materials

Gray glaze associated with windows and the mopcoat associated with the roof has been reported by EMSL to be less than 1% asbestos (<1%). This material (and associated wood substrate) must be appropriately disposed of as asbestos.

5. CONCLUSIONS

The results of the survey indicate that asbestos materials are present within the building spaces and must be abated prior to building demolition. Additionally, the gray glaze associated with windows and the mopcoat associated with the roof, and associated wood substate (if contaminated), must be appropriately disposed of as asbestos.

ASBESTOS

While the Survey activities conducted by SLR sought to identify, to the best of our ability, the materials that will require abatement, it is possible that certain other ACMs located in discrete and/or inaccessible areas may ultimately be discovered during demolition activities. Should such materials be encountered, the demolition contractor should assume them to contain asbestos and remove and dispose of them accordingly.

Project Area inaccessible areas (materials must be assumed until sampled) include, but are not limited to, the following:

- Below-grade materials (*i.e.,* utility piping, slab/foundation mastics, etc.); and,
- Within mechanical units (*i.e.,* boilers, etc.), electrical and plumbing systems.

Connecticut regulations require that any asbestos-related activity conducted be performed by appropriately trained and licensed personnel. Asbestos abatement should be in accordance with a project design prepared by a Connecticut-licensed project designer. Third-party air monitoring should be conducted during abatement activities and visual/air clearances must be conducted at the completion of each/all abatement activities.

RACM must be removed and properly disposed of prior to demolition activities. The owner or operator of a facility must provide CTDPH with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities.

Lead paint and polychlorinated biphenyls (PCB) building materials will need to be characterized prior to disturbance and disposal.

6. RELIANCE

This report is for the exclusive use of the City of Derby for the project being discussed. Reliance by any other party on this report is prohibited without the written authorization of SLR.

7. GENERAL COMMENTS

This Survey (limitations and/or inaccessible areas discussed above) was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this Survey are based on conditions observed during the assessment. The information contained in this Survey is relevant to the dates on which the survey was performed and should not be relied upon to represent conditions at a later date.

This Survey is not a bidding document. Contractors or consultants reviewing this Survey must draw their own conclusions regarding further investigation or remediation deemed necessary. SLR does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this Survey. No warranty, express or implied, is made.

It is important to note that we cannot guarantee that all asbestos or potentially hazardous materials have been identified. In addition, ACM's have often been used in areas where detection is difficult until renovation, demolition, and/or asbestos abatement work begins and allows access to these remote areas.

In accordance with federal regulations stated above, the materials not representatively sampled or present in the inaccessible area(s) listed above must be assumed as ACM until appropriate characterization is performed of such materials, and they are proven to be non-ACM by an appropriately accredited laboratory.

LIMITATIONS

1. SLR's asbestos/hazardous materials evaluations were performed in accordance with the client's requests and generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and SLR observed the degree of care and skill generally exercised by other consultants under similar circumstances and conditions. SLR's findings and conclusions must be considered not as scientific certainties but rather as our professional opinion concerning the significance of the data gathered during the course of the asbestos/hazardous materials evaluations. No other warranty, express or implied, is made. Specifically, SLR does not and cannot represent that the site contains no ACMs, hazardous materials, or other latent condition beyond that observed by SLR during its asbestos/hazardous materials evaluations.

2. This report, which present our findings, shall not be used as a bid document/work plan, or in place of a work plan, for conducting asbestos abatement. When an asbestos abatement specification/ work plan is prepared, the State of Connecticut requires that the plan be prepared by a USEPA-certified and Connecticut-Licensed Asbestos Project Designer. SLR recommends that a work plan be prepared by the contractor (as SLR does not determine means and methods for abatement activities) and a bid walk-through be administered by SLR personnel familiar with the on-site asbestos conditions.

3. The observations described in this report were made under the conditions stated herein. The conclusions presented in the reports were based solely upon the services described therein and not on scientific tasks or procedures beyond the proposed scope of services.

4. The conclusions and recommendations contained in this report are based on environmental sampling and visual observations (not including inaccessible areas) and were arrived at in accordance with generally accepted standards of industrial hygiene practice. No other warranty, express or implied, is made.

5. Where sample analyses were conducted by an outside laboratory, SLR has relied upon the data provided and has not conducted an independent evaluation of the reliability of these data.

6. The purpose of this report was to assess the physical characteristics of the subject Site building spaces surveyed with respect to the presence of asbestos in the Site building. No specific attempt was made to check on the compliance by any party with federal, state, or local laws and regulations.

7. Observations were made of the Site buildings as indicated within the reports. While it was SLR's intent to conduct a thorough Survey, it is important to note that we cannot guarantee that all asbestos or potentially hazardous materials within the surveyed areas have been identified. ACMs have frequently been used in areas where detection is difficult until renovation, demolition, and/or asbestos abatement work begins and allows access to these remote areas. All quantities of suspect hazardous materials provided as part of this Survey are estimates based upon our observations and rough measurements. The quantities should not be considered as anything other than estimates for planning purposes.

APPENDIX A

ASBESTOS ANALYTICAL LABORATORY REPORTS AND CHAINS OF CUSTODY

APPENDIX B

LICENSES

APPENDIX C

PHOTOGRAPHS

Joint compound and cross-contaminated materials/areas

Multi-layer Flat Roofing

Roof Flashing at Parapet Wall

APPENDIX D

AMC ENVIRONMENTAL, LLC REPORT DATED OCTOBER 19, 2020

187-189 DERBY AVENUE
DERBY, CT

Asbestos Materials Survey

Prepared for:

City of Derby

Client Ref: SLR #141.11560.00138

October 2021

Asbestos Materials Survey

Prepared for:
City of Derby
1 Elizabeth Street, 2nd Floor
Derby, CT 06418

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APPENDICES

1. INTRODUCTION

SLR International Corporation (SLR) conducted an Asbestos Materials Survey (Survey) at 187-189 Derby Ave located in Derby, Connecticut (the "Site") on September 29, 2021. Per the request of the City of Derby, the assessment only concentrated on the possible presence of asbestos containing materials associated with the Site. AMC Environmental, LLC (AMC) previously conducted an asbestos inspection in August 2020. This supplemental assessment only concentrated on the possible presence of asbestos-containing building materials not yet tested, and materials requiring additional testing for confirmation purposes. Results of both surveys are included in this report.

BUILDING DESCRIPTION

The approximately 3,200 square feet (SF) multi-story structure was constructed in 1869. This structure has been under renovation activities with multiple materials removed from the site Building spaces include, but are not limited to, bedrooms, basement mechanical room, bathroom, kitchen, living room, and dining room. Finished materials SLR viewed were gypsum board and plaster wall/ceiling systems, hardwood floor systems (various systems are atop), wood and vinyl window systems, and exterior metal siding.

2. REGULATORY OVERVIEW

ASBESTOS

United States Environmental Protection Agency (USEPA) regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) regulates asbestos fiber emissions during demolition or demolition activities and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition activities. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable, or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos. Category II non-friable ACM are any materials other than Category I materials that contain more than 1 percent asbestos.

The Occupational Safety & Health Administration (OSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained at or below 0.1 asbestos fibers per cubic centimeter (f/cc) of air as an 8-hour time-weighted average (TWA) and not exceed 1.0 f/cc of air over a 30-minute time period known as an excursion limit (EL). The TWA and EL are known as OSHA's permissible exposure limits (PELs). The OSHA exposure limits (0.1 f/cc) of air as an 8-hour time-weighted average or 1.0 f/cc of air over 30 minutes (EL) for asbestos apply when materials containing 1 percent asbestos or less are disturbed during renovations or demolitions. The OSHA standard classifies construction and maintenance activities that could disturb ACM and specifies work practices and precautions that employers must follow when engaging in each class of regulated work. States that administer their own federally approved state OSHA programs may require additional precautions.

Friable ACMs and Category I and Category II nonfriable ACMs that are in poor condition and have become friable (crushed or pulverized during anticipated renovation or demolition activities) due to drilling, sanding, grinding, cutting, or abrading are considered Regulated Asbestos Containing Materials (RACM).

CT DPH regulations specify that non-friable materials with a "trace" result require the material to be disposed of as asbestos. If the material is friable (i.e., materials that may be easily reduced to a powder by applying hand pressure such as pipe/fitting insulation, plaster coats, etc.) during disturbance/ abatement, the USEPA, under the asbestos NESHAP regulation, requires that the material(s) be abated in accordance with the asbestos removal regulations (work to be performed in a controlled environment/containment). Materials containing less than 1% asbestos are not regulated by USEPA for removal practices, unless friable (or made friable during removal operations), at which point the materials are regulated for removal activities through NESHAP. However, the OSHA PEL and TWA over the EL for asbestos apply when materials containing 1% asbestos or less are disturbed during renovations or demolitions. A listing of materials that contain 1% asbestos or less is provided above to enable the demolition contractor to make appropriate decisions concerning compliance issues with applicable OSHA regulations.

3. FIELD ACTIVITIES

ASBESTOS

The asbestos survey was performed by Connecticut-licensed asbestos inspectors (license provided in Appendix B), Mr. Ryan Rouillard and Simon Hoey on September 29, 2021. The purpose of this survey was to supplement the previous AMC initial assessment (Appendix D). This was achieved by performing a document review of the known asbestos materials, identifying materials that were initially demonstrated to not contain asbestos, and establishing an appropriate sampling plan of materials to be tested to generally meet the protocols established in USEPA regulation 40 CFR 763. Access to the building and areas of interest was provided by the City of Derby.

Sample Collection

Random samples of suspect ACM were collected in each homogeneous area utilizing equipment such as, but not limited to, ladders and hand tools (*i.e.,* sledgehammers, screw-drivers, chisels, knives, flashlights, gloves, and prybars). Bulk asbestos samples were collected using wet methods, as applicable, to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

Sample Analysis

Suspect asbestos bulk samples (37) were submitted under chain of custody (COC) to EMSL Analytical, Inc. (EMSL) for analysis as part of this Asbestos Survey. Samples were analyzed by polarized light microscopy (PLM) with dispersion staining techniques per USEPA's Method for the Determination of Asbestos in Bulk Building Materials (600/R-93-116). The laboratory was instructed to analyze samples from each homogeneous area until the first sample containing asbestos was identified (*i.e.,* stop positive protocol). EMSL is accredited by the State of Connecticut for asbestos bulk sample analysis. The percentage of asbestos, where present, was determined by microscopic visual estimation. EMSL separated out multiple layers from some of the materials submitted and used the "stop at first positive" protocol; consequently, a total of 34 samples were analyzed. A copy of the EMSL laboratory analytical report and SLR's COC documentation are provided in Appendix A.

No other environmental sampling was conducted as part of the scope of work for this Survey.

4. FINDINGS

ASBESTOS

The materials listed in the tables below have been determined to contain asbestos in concentrations equal to or greater than 1 percent (%).

Table 1 - Identified Asbestos-Containing Materials and Estimated Quantities

Material Description	Location and Estimated Quantity[1]	Asbestos Analytical Result
Duct Wrap[2]	RM 05[2] & 1st Floor Dining Room – Minimum 10 LF[2] (35 SF)	50%
Stick on Floor Tile[2]	RM 32, 37, 21 – 250 SF[2]	5%
Roof Caulking[2]	Roof[2] (not viewed by SLR)	8%
Black Mastic	Vent Pipe – 3 SF	12.1%
Gray and Black Mastic	Chimney – 20 SF	20.9%
Brown Adhesive	2nd Floor Front Bedroom Ceiling & Adjacent Hall – 200 SF	6.7%

NOTE: SF = Square Feet, LF = Linear Feet

[1]Estimated quantities are based on a cursory field evaluation of the Site building, and actual quantities may vary significantly, especially due to ACMs being present in hidden areas not evaluated as part of this survey, covered by loose items, and/or inaccessible areas discovered during this survey (such as below-grade/below concrete floor slabs/foundation wall mastics, if applicable).

[2]AMC Environmental, LLC (Report Dated October 19, 2020) results

Brown adhesive associated with 2nd floor wall panels has been reported by EMSL to be less than 1% asbestos (0.25%). This material must be appropriately disposed of as asbestos.

5. CONCLUSIONS

The results of the survey indicate that asbestos materials are present within the building spaces and must be abated prior to building demolition. Additionally, the brown adhesive (0.25%) associated with 2nd floor wall panels and associated wood substate (if contaminated) must be appropriately disposed of as asbestos.

ASBESTOS

While the Survey activities conducted by SLR sought to identify, to the best of our ability, the materials that will require abatement, it is possible that certain other ACMs located in discrete and/or inaccessible areas may ultimately be discovered during demolition activities. Should such materials be encountered, the demolition contractor should assume them to contain asbestos and remove and dispose of them accordingly.

Project Area inaccessible areas (materials must be assumed until sampled) include, but are not limited to, the following:

- Below-grade materials (*i.e.,* utility piping, slab/foundation mastics, etc.); and,
- Within mechanical units (*i.e.,* boilers, HVAC, etc.), electrical and plumbing systems.

Connecticut regulations require that any asbestos-related activity must be performed by appropriately trained and licensed personnel. Asbestos abatement should be in accordance with a project design prepared by a Connecticut-licensed project designer. Third-party air monitoring should be conducted during abatement activities and visual/air clearances must be conducted at the completion of each/all abatement activities.

RACM must be removed and properly disposed of prior to demolition activities. The owner or operator of a facility must provide CTDPH with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities.

Lead paint and polychlorinated biphenyls (PCB) building materials will need to be characterized prior to disturbance and disposal.

6. RELIANCE

This report is for the exclusive use of the City of Derby for the project being discussed. Reliance by any other party on this report is prohibited without the written authorization of SLR.

7. GENERAL COMMENTS

This Survey (limitations and/or inaccessible areas discussed above) was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this Survey are based on conditions observed during the assessment. The information contained in this Survey is relevant to the dates on which the survey was performed and should not be relied upon to represent conditions at a later date.

This Survey is not a bidding document. Contractors or consultants reviewing this Survey must draw their own conclusions regarding further investigation or remediation deemed necessary. SLR does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this Survey. No warranty, express or implied, is made.

It is important to note that we cannot guarantee that all asbestos or potentially hazardous materials have been identified. In addition, ACM's have often been used in areas where detection is difficult until renovation, demolition, and/or asbestos abatement work begins and allows access to these remote areas.

In accordance with federal regulations stated above, the materials not representatively sampled or present in the inaccessible area(s) listed above must be assumed as ACM until appropriate characterization is performed of such materials, and they are proven to be non-ACM by an appropriately accredited laboratory.

LIMITATIONS

1. SLR's asbestos/hazardous materials evaluations were performed in accordance with the client's requests and generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and SLR observed the degree of care and skill generally exercised by other consultants under similar circumstances and conditions. SLR's findings and conclusions must be considered not as scientific certainties but rather as our professional opinion concerning the significance of the data gathered during the course of the asbestos/hazardous materials evaluations. No other warranty, express or implied, is made. Specifically, SLR does not and cannot represent that the site contains no ACMs, hazardous materials, or other latent condition beyond that observed by SLR during its asbestos/hazardous materials evaluations.

2. This report, which present our findings, shall not be used as a bid document/work plan, or in place of a work plan, for conducting asbestos abatement. When an asbestos abatement specification/ work plan is prepared, the State of Connecticut requires that the plan be prepared by a USEPA-certified and Connecticut-Licensed Asbestos Project Designer. SLR recommends that a work plan be prepared by the contractor (as SLR does not determine means and methods for abatement activities) and a bid walk-through be administered by SLR personnel familiar with the on-site asbestos conditions.

3. The observations described in this report were made under the conditions stated herein. The conclusions presented in the reports were based solely upon the services described therein and not on scientific tasks or procedures beyond the proposed scope of services.

4. The conclusions and recommendations contained in this report are based on environmental sampling and visual observations (not including inaccessible areas) and were arrived at in accordance with generally accepted standards of industrial hygiene practice. No other warranty, express or implied, is made.

5. Where sample analyses were conducted by an outside laboratory, SLR has relied upon the data provided and has not conducted an independent evaluation of the reliability of these data.

6. The purpose of this report was to assess the physical characteristics of the subject Site building spaces surveyed with respect to the presence of asbestos in the Site building. No specific attempt was made to check on the compliance by any party with federal, state, or local laws and regulations.

7. Observations were made of the Site buildings as indicated within the reports. While it was SLR's intent to conduct a thorough Survey, it is important to note that we cannot guarantee that all asbestos or potentially hazardous materials within the surveyed areas have been identified. ACMs have frequently been used in areas where detection is difficult until renovation, demolition, and/or asbestos abatement work begins and allows access to these remote areas. All quantities of suspect hazardous materials provided as part of this Survey are estimates based upon our observations and rough measurements. The quantities should not be considered as anything other than estimates for planning purposes.

APPENDIX A

ASBESTOS ANALYTICAL LABORATORY REPORTS AND CHAINS OF CUSTODY

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
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http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order ID: 042124529
Customer ID: MMAC42
Customer PO:
Project ID:

Attn: Keith Allard
SLR International Corporation
2 Commerce Drive, Suite 110
Bedford, NH 03110

Phone: (203) 271-1773
Fax:
Collected:
Received: 9/30/2021
Analyzed: 10/05/2021

Proj: 141.11560.0013 Derby Lane

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 001A **Lab Sample ID:** **042124529-0001**

Sample Description: Roof - Top Layer 3-Tab/Brown Asphalt Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan/Black	15.0%	85.0%	None Detected	

Client Sample ID: 001B **Lab Sample ID:** **042124529-0002**

Sample Description: Roof - Top Layer 3-Tab/Brown Asphalt Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan/Black	15.0%	85.0%	None Detected	

Client Sample ID: 002A **Lab Sample ID:** **042124529-0003**

Sample Description: Roof - Lower Layer 3-Tab/Gray Asphalt Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Gray/Black	30.0%	70.0%	None Detected	

Client Sample ID: 002B **Lab Sample ID:** **042124529-0004**

Sample Description: Roof - Lower Layer 3-Tab/Gray Asphalt Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Gray/Black	30.0%	70.0%	None Detected	

Client Sample ID: 003A **Lab Sample ID:** **042124529-0005**

Sample Description: Roof - Chimney/Gray/Black Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Gray/Black	0.0%	79.1%	**20.9% Chrysotile**	

Client Sample ID: 003B **Lab Sample ID:** **042124529-0006**

Sample Description: Roof - Chimney/Gray/Black Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021				Positive Stop (Not Analyzed)	

Client Sample ID: 004A **Lab Sample ID:** **042124529-0007**

Sample Description: Roof - Vent Pipe/Black Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Black	0.0%	87.9%	**12.1% Chrysotile**	

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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 004B ***Lab Sample ID:*** **042124529-0008**

Sample Description: Roof - Vent Pipe/Black Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021				Positive Stop (Not Analyzed)	

Client Sample ID: 005A ***Lab Sample ID:*** **042124529-0009**

Sample Description: Exterior - Under Metal Siding/Foil Paper

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Brown/Silver	40.0%	60.0%	None Detected	

Client Sample ID: 005B ***Lab Sample ID:*** **042124529-0010**

Sample Description: Exterior - Under Metal Siding/Foil Paper

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Brown/Silver	40.0%	60.0%	None Detected	

Client Sample ID: 006A ***Lab Sample ID:*** **042124529-0011**

Sample Description: Interior under Porch - 2' x 6' Window/Brown Glaze

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	0.0%	100.0%	None Detected	

Client Sample ID: 006B ***Lab Sample ID:*** **042124529-0012**

Sample Description: Interior under Porch - 2' x 6' Window/Brown Glaze

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	0.0%	100.0%	None Detected	

Client Sample ID: 007A ***Lab Sample ID:*** **042124529-0013**

Sample Description: Interior - First Floor Walls on Panels/White Glaze

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 007B ***Lab Sample ID:*** **042124529-0014**

Sample Description: Interior - First Floor Walls on Panels/White Glaze

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	White	0.0%	100.0%	None Detected	

Client Sample ID: 008A ***Lab Sample ID:*** **042124529-0015**

Sample Description: Interior - First Floor Walls on Panels/Yellow Adhesive on Panel

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Yellow	0.0%	100%	None Detected	

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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 008B ***Lab Sample ID:*** **042124529-0016**

Sample Description: Interior - First Floor Walls on Panels/Yellow Adhesive on Panel

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Yellow	0.0%	100%	None Detected	

Client Sample ID: 009A ***Lab Sample ID:*** **042124529-0017**

Sample Description: Interior - First Floor Kitchen/White Sink Undercoating

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	15.0%	85.0%	None Detected	

Client Sample ID: 009B ***Lab Sample ID:*** **042124529-0018**

Sample Description: Interior - First Floor Kitchen/White Sink Undercoating

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	White	10.0%	90.0%	None Detected	

Client Sample ID: 010A ***Lab Sample ID:*** **042124529-0019**

Sample Description: Interior - 2nd Floor Hall Walls/Brown Panel Adhesive

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Brown	0.0%	100%	**<0.25% Chrysotile**	

Client Sample ID: 010B ***Lab Sample ID:*** **042124529-0020**

Sample Description: Interior - 2nd Floor Hall Walls/Brown Panel Adhesive

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Brown	0.0%	100%	**<0.25% Chrysotile**	

Client Sample ID: 011A ***Lab Sample ID:*** **042124529-0021**

Sample Description: Interior - 2nd Floor Front Bedroom/Brown Ceiling Adhesive (on strapping)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021	Brown	0.0%	93.3%	**6.7% Chrysotile**	

Client Sample ID: 011B ***Lab Sample ID:*** **042124529-0022**

Sample Description: Interior - 2nd Floor Front Bedroom/Brown Ceiling Adhesive (on strapping)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	10/05/2021				Positive Stop (Not Analyzed)	

Client Sample ID: 012A ***Lab Sample ID:*** **042124529-0023**

Sample Description: Interior - 2nd Floor Walls/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	White	0.0%	100.0%	None Detected	

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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 012B **Lab Sample ID:** **042124529-0024**
Sample Description: Interior - 2nd Floor Walls/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	White	0.0%	100.0%	None Detected	

Client Sample ID: 012C **Lab Sample ID:** **042124529-0025**
Sample Description: Interior - 2nd Floor Walls/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	White	0.0%	100.0%	None Detected	

Client Sample ID: 013A **Lab Sample ID:** **042124529-0026**
Sample Description: Interior - 1st Floor Bedroom Walls/Wallpaper

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Brown	70.0%	30.0%	None Detected	

Client Sample ID: 013B **Lab Sample ID:** **042124529-0027**
Sample Description: Interior - 1st Floor Bedroom Walls/Wallpaper

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Brown	70.0%	30.0%	None Detected	

Client Sample ID: 014A-Vapor Barrier **Lab Sample ID:** **042124529-0028**
Sample Description: Interior - 3rd Floor under Floating Floor A-top Hardwood Floor/Black Vapor Barrier

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Black	70.0%	30.0%	None Detected	

Client Sample ID: 014A-Flooring **Lab Sample ID:** **042124529-0028A**
Sample Description: Interior - 3rd Floor under Floating Floor A-top Hardwood Floor/Black Vapor Barrier

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	35.0%	65.0%	None Detected	

Client Sample ID: 014B-Vapor Barrier **Lab Sample ID:** **042124529-0029**
Sample Description: Interior - 3rd Floor under Floating Floor/Black Vapor Barrier

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Black	70.0%	30.0%	None Detected	

Client Sample ID: 014B-Flooring **Lab Sample ID:** **042124529-0029A**
Sample Description: Interior - 3rd Floor under Floating Floor/Black Vapor Barrier

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	35.0%	65.0%	None Detected	

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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 015A ***Lab Sample ID:*** **042124529-0030**

Sample Description: Interior - 3rd Floor I/S Walls / Ceiling/Electrical Wiring Sheath

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Black	40.0%	60.0%	None Detected	

Client Sample ID: 015B ***Lab Sample ID:*** **042124529-0031**

Sample Description: Interior - 3rd Floor I/S Walls / Ceiling/Electrical Wiring Sheath

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Black	30.0%	70.0%	None Detected	

Client Sample ID: 016A-Adhesive ***Lab Sample ID:*** **042124529-0032**

Sample Description: Interior - 3rd Floor Former Room 37 - West Room/Yellow Adhesive associated Stick-n Floor Tile

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 016A-FT ***Lab Sample ID:*** **042124529-0032A**

Sample Description: Interior - 3rd Floor Former Room 37 - West Room/Yellow Adhesive associated Stick-n Floor Tile

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	40.0%	60.0%	None Detected	

Client Sample ID: 016B-Adhesive ***Lab Sample ID:*** **042124529-0033**

Sample Description: Interior - 3rd Floor Former Room 37 - West Room/Yellow Adhesive associated Stick-n Floor Tile

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 016B-FT ***Lab Sample ID:*** **042124529-0033A**

Sample Description: Interior - 3rd Floor Former Room 37 - West Room/Yellow Adhesive associated Stick-n Floor Tile

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/05/2021	Tan	40.0%	60.0%	None Detected	

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EMSL Order ID:	042124529
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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Analyst(s):

Gregory Barry	PLM (14) PLM Grav. Reduction (5)
Nicholas Montoya-Orozco	PLM (13) PLM Grav. Reduction (2)

Reviewed and approved by:

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Report amended: 10/06/202112:56:11 Replaces amended report from: 10/06/202112:55:44 Reason Code: Data Entry-Change to Location

OrderID: 042124529

Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only: 042124529

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EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Customer Information

Customer ID:	MMAC42
Company Name:	SLR International Corporation
Contact Name:	Keith Allard
Street Address:	2 Commerce Drive, Suite 110
City, State, Zip:	Bedford, NH 03110
Country:	US
Phone:	603 289-1951
Email(s) for Report:	kallard@slrconsulting.com

Billing Information

Billing ID:	
Company Name:	SLR International Corporation
Billing Contact:	Keith Allard
Street Address:	2 Commerce Drive, Suite 110
City, State, Zip:	Bedford, NH 03110
Country:	US
Phone:	603 289-1951
Email(s) for Invoice:	kallard@slrconsulting.com

Project Information

Project Name/No: 141.11560.00138 - ~~ANSON~~ DERBY AVE
Purchase Order:
EMSL LIMS Project ID: (If applicable, EMSL will provide)
US State where samples collected: CT
State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name: R. Rowillard
Sampled By Signature:
No. of Samples in Shipment

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☑ 96 Hour ☐ 1 Week ☐ 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

Test Selection

PLM - Bulk (reporting limit)

☑ PLM EPA 600/R-93/116 (<1%)
☑ PLM EPA NOB (<1%) 003, 004, 008, 010, 011
☐ POINT COUNT
☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
POINT COUNT w/ GRAVIMETRIC
☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
☐ NIOSH 9002 (<1%)
☐ NYS 198.1 (Friable - NY)
☐ NYS 198.6 NOB (Non-Friable - NY)
☐ NYS 198.8 (Vermiculite SM-V)

TEM - Bulk

☐ TEM - Bulk
☐ TEM EPA NOB
☐ NYS NOB 198.4 (Non-Friable-NY)
☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Tests (please specify)

☑ Positive Stop - Clearly Identified Homogeneous Areas (HA)

RECEIVED EMSL CINNAMINSON, NJ 2021 SEP 30 AM 10:18

Sample Number	HA Number	Sample Location	Material Description
001A		ROOF – TOP LAYER (3-TAB)	BROWN Asphalt Shingle
B		–	
002A		– LOWER LAYER (3-TAB)	GRAY Asphalt Shingle
B		–	
003A		– Chimney	GRAY/BLACK Mastic
B		–	
004A		– Vent Pipe	BLACK MASTIC
B		–	
005A		EXTERIOR – Under Metal Siding Only	Felt/Paper
B			

NOB
NOB

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

330

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time: 9-30-21 930A

Controlled Document - Asbestos Bulk R5 03/18/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

NOTE: NO PAPER UNDER METAL SIDING (LOWER LAYERS)

OrderID: 042124529

Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only

042124529

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

187/189 DERBY AVENUE

Sample Number	HA Number	Sample Location	Material Description
006A		Interior - (Under Porch) (2'x3' window)	Brown Glaze
B			
007A		Wood Windows (1'x3' window)	White Glaze
B			
008 A		- First Floor Walls (on Panels)	Yellow Adhesive (on Panel)
B			
009 A		- First Floor Kitchen	White Sink Undercoating
B			
010 A		- 2nd Flr Hall Walls	Brown Panel Adhesive
B			
011A		- 2nd Flr (Front Bedroom)	Brown Ceiling Adhesive (on Strapping)
B			
012 A		- 2nd Flr Walls	Joint Compound (White)
B			
C			
013 A		- 1st Flr B.R. Walls	Wallpaper
B			
014 A		- 3rd Flr - under Flooring Flr atop H.W. Floor	(Blk) Vapor Barrier
B			
015 A		- 3rd Flr I/s walls/ceiling	Elect. Wiring Stealth
B			
016 A		former Rm 37 (West Rm)	Yellow Adhesive Assoc. w/ Stucco on F/T.
B		END	

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

RECEIVED EMSL CINNAMINSON, N.J. SEP 30 AM 10:18

Controlled Document - Asbestos Bulk R5 03/18/2021

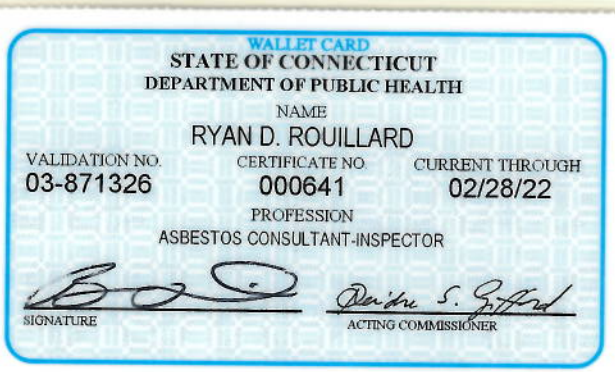
☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 2 of 2

APPENDIX B

LICENSES


WALLET CARD
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
NAME
RYAN D. ROUILLARD
VALIDATION NO. 03-871326
CERTIFICATE NO. 000641
CURRENT THROUGH 02/28/22
PROFESSION
ASBESTOS CONSULTANT-INSPECTOR
SIGNATURE
ACTING COMMISSIONER

This is to certify that

Ryan D. Rouillard

has completed requisite training by Video Conference, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location

Zoom Video Conference
Institute for Environmental Education 16 Upton Drive Wilmington, MA 01887

November 17, 2020
Course Dates

20-2979-106-226296
Certificate Number

November 17, 2020
Examination Date

November 17, 2021
Expiration Date

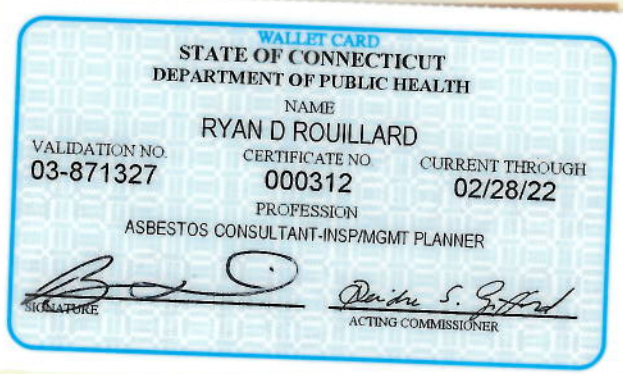
Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

This is to certify that

Ryan D. Rouillard


WALLET CARD
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
NAME
RYAN D ROUILLARD
VALIDATION NO. 03-871327
CERTIFICATE NO 000312
CURRENT THROUGH 02/28/22
PROFESSION
ASBESTOS CONSULTANT-INSP/MGMT PLANNER
SIGNATURE
ACTING COMMISSIONER

has completed the requisite training by Video Conference, and has passed an examination for reaccreditation

Asbestos Management Planner Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location

Zoom Video Conference
Institute for Environmental Education 16 Upton Drive Wilmington, MA 01887

November 17, 2020
Course Dates

20-2992-136-226296
Certificate Number

November 17, 2020
Examination Date

November 17, 2021
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

APPENDIX C

PHOTOGRAPHS


Duct Wrap



Stick on Floor Tile



Ceiling - Brown Adhesive | Vent Pipe/Chimney - Black Mastic | Panel - Brown Adhesive (0.25%)

APPENDIX D

AMC ENVIRONMENTAL, LLC REPORT

DATED SEPTEMBER 11, 2020

PRE-DEMOLITION ASBESTOS INSPECTION

PERFORMED AT:

187-189 Derby Avenue
Derby, CT

PREPARED FOR:
Town of Derby

PREPARED BY:

AMC ENVIRONMENTAL, LLC
P. O. BOX 423
STRATFORD, CONNECTICUT 06615
(203) 378-5020

Inspection Date: August 18, 2020
Report Date: September 11, 2020

1.0 INTRODUCTION

On August 18, 2020, AMC Environmental, LLC conducted a pre-demolition asbestos inspection at 187-189 Derby Avenue, Derby, CT. The scope of this inspection is limited to the materials described below.

Asbestos Containing Materials

The asbestos inspection was conducted in accordance with the USEPA National Emission Standard for Hazardous Air Pollutants Act (NESHAP) as amended November 20, 1990. The NESHAP final rule requires the identification and removal of all regulated ACM in a building prior to removal or demolition.

Asbestos inspection performed by: Jason Pringle
State of CT licensed Asbestos Inspector/Mgmt. Planner
License # 000269

2.0 BUILDING DESCRIPTION

The subject building located at 187-189 Derby Avenue, Derby, CT is a two-story structure of wood frame construction. The building is constructed with full unfinished basement. The interior walls/ceilings consist of two-coat plaster construction as well as areas of sheetrock and joint compound construction. The window frames and sashes are vinyl construction and the doors and doorframes are of wood construction. The floors consist of hardwood flooring and vinyl flooring. The piping is uninsulated and the mechanical system is a forced hot air system located on the basment. The ductwork found on the 1st floor is insulated with a suspect paper ductwrap. The exterior façade is aluminum siding with a concrete foundation. The roof is pitched with asphalt shingles.

3.0 ASBESTOS CONTAINING MATERIALS

Inspection

This asbestos-containing materials inspection included the entire residential building. Semi-destructive testing techniques are utilized during the inspection process. This included cutting through various layers of flooring and wall sheathing to sample and verify layers of suspect ACM. Suspect building materials that are inaccessible for inspection and sampling are assumed to be ACM for the purpose of this report. These suspect materials are generally located behind rigid walls or ceilings, inside mechanical systems, or in otherwise concealed areas of the building.

During the inspection, the Inspector documents the location, quantity, class, and friability of

each suspect material. Friability is an industry term that measures a material's resilience. Material that can be easily crumbled, pulverized, or reduced to powder when dried is defined as being friable. Estimated quantities of identified ACM's are provided for positive material only. Each material is either quantified in square or linear footage, depending on the material.

Bulk Sampling

The United States Environmental Protection Agency (USEPA) has separated ACM into three categories. These categories are: Thermal System Insulation (TSI), Surfacing Materials, and Miscellaneous materials. TSI includes all materials that are used to prevent heat loss or gain, or water condensation on mechanical systems. Examples of TSI are pipe covering, boiler insulation, duct wrap, and mudded fitting cement. Surfacing includes any material that sprayed, troweled, or otherwise to an existing surface. Surfacing applications are commonly used in fireproofing and acoustical applications. All other material falls into the miscellaneous category such as vinyl floor tiles, ceiling tiles and drywall. All sampling methods and sampling quantities are collected at AMC's discretion and meet or exceed requirements set by the USEPA.

Bulk Sample Analysis

Samples of suspect materials are transmitted directly to an independent, State of Connecticut Department of Public Health (DPH), laboratory for analysis by Polarized Light Microscopy (PLM). PLM is the acceptable method of analysis in accordance with the Environmental Protection Agency (EPA) "Interim Method for the Determination of Asbestos in Bulk Insulation", 40 CFR 763, Subpart F, Appendix A EPA 600/M4-82-020. The Inspector collected "sets" of samples for each homogenous material sampled. Each sample is analyzed in the set until one sample is determined to contain asbestos (more than 1%). Sample analyses are reported in percentage of asbestos. The USEPA defines ACM as any material that contains more than 1 % asbestos, by way of PLM. "NAD", refers to "No asbestos Detected", and "DNA" refers to "Did Not Analyze" due to stop at first positive. The State of Connecticut Department of Public Health, the USEPA, as well as the United States Department of Labor regulate any material determined to contain greater than 1% of asbestos.

Friable ACM

Other analytical methods are recommended for certain friable material samples. The Point Count Method can further analyze friable materials shown to contain less than 10% asbestos by PLM analysis. Recommended, by the United States Environmental Protection Agency, the Point Count Method is accepted as providing accurate analytical results when determining the percent content of bulk samples with very low asbestos concentrations. Friable material containing less than 1% asbestos must be analyzed by the (PLM) Point Count Method.

Non-Friable ACM

Non-friable asbestos samples showing percentages containing less than 1%, NAD, or "TRACE", should be confirmed by the "NOB TEM ELAP 198.4 Method". This procedure is recommended by the USEPA. If the results from this analysis determine asbestos content to still be less than 1 %, the sample is considered not to be asbestos containing.

4.0 Conclusion

During the course of the building inspection, forty-two (42) samples of suspect ACM were collected.

From the forty-two (42) samples obtained, three (3) materials were found to be ACM. These materials were the duct wrap in room 5, the floor tiles in rooms 37 and 32, the floor tiles in 21, and the roof seam caulking/flashing.

A complete inventory of all materials sampled is provided in the tables at the end of the report. Table 1 for asbestos containing materials and Table 2 non-asbestos containing materials (see *Appendix A* for analytical results).

5.0 RECOMMENDATIONS CONCERNING ASBESTOS

Laws govern all asbestos activities undertaken in the State of Connecticut. AMC Environmental, LLC suggests the following to ensure compliance with state, federal, or local asbestos regulations and to reduce possible liabilities.

- State of Connecticut, Department of Public Health; Standards for Asbestos Abatement (19a-332-1a through 19a-332a-16).
- State of Connecticut Licensure and Training Requirements for Persons Engaged in Asbestos Abatement and Consultation Services Section 20-440-1 through 20-440-9.
- The Federal Regulation governing asbestos is Title 40 of the Code of Federal Regulations (40 CFR), Part 61, Subpart M, Demolition and/or Renovation of Facilities with Asbestos-Containing Materials.

Inaccessible Areas

All areas appeared to be accessible at the time of the assessment.

Disclaimer

Any work performed by AMC Environmental, LLC was done using the degree of care and skill ordinarily exercised under similar circumstances by members of the profession practicing in the same or similar capacity. The standard of care shall exclusively be judged as of the date of services rendered and not according to later standards. The conclusions and recommendations contained in this report are based on limited environmental sampling and visual observations, and were arrived at in accordance with generally accepted standards of industrial hygiene practice. No other warranty, expressed or implied, is made.

Report Written By: Jason Pringle
CT Inspector/ Mgmt. Planner License No. 000269

TABLE 1

ASBESTOS CONTAINING MATERIALS SUMMARY

AMC Environmental, LLC

P.O. Box 423, Stratford, CT 06615

TABLE 1
ASBESTOS CONTAINING MATERIALS
SUMMARY TABLE

187-189 Derby Ave
Derby, CT

AMC Tracking # ASB0818		Laboratory: EMSL Analytical, Inc.						Laboratory Order# 622001278	
LOCATION(S)	MATERIAL TYPE	SAMPLE #	CLASS	BULK SAMPLE ANALYSIS RESULTS				QUANTITY*	F/NF
				PLM	PLM PC	TEM NOB	ACM		
RM 05	Duct Wrap	B081823,24,25	MISC	50% chrysotile			YES	Minimum 10 linear ft.	NF
RM 32,37,21	Stick on Floor Tile	B081832,33,36,37	MISC	5%chrysotile			YES	250 sq. ft.	NF
Roof	Roof Caulking	B081838,39,40	MISC	8%chrysotile			YES	TBD	NF

KEY:		ANALYTICAL METHODS:
NA - Not Analyzed	SF - Square Feet	PLM PC – EPA 600/R-93/116 Quantitation 400 Point Count
NAD - No Asbestos Detected	LF - Linear Feet	TEM NOB – New York ELAP 198.4 Method
F - Friable	Chrys - Chrysotile	PLM – EPA 600-R-93/116 Method
NF - Non-Friable	Amos - Amosite	PS – Previously Samples
TSI - Thermal Systems Insulation	Anth - Anthophylite	ACM - Asbestos Containing Material
SURF - Type of Surfacing Material	Trem - Tremolite	ASSD – Assumed Asbestos Containing Material
MISC - Miscellaneous Material	Croc - Crocidolite	

* Please Note: Quantities are estimates. Determination of exact quantities for bidding purposes is the sole responsibility of the contractor

Samples Analyzed By EPA Method 600/R-93/116 (PLM)
IN ACCORDANCE WITH STATE OF CONNECTICUT REGULATIONS Section 19a333-5

NOTE Polarized Light Microscopy may not consistently detect asbestos in samples of roofing, flashing, floor tile, mastic and similar non-organically bound materials. Transmission Electron Microscopy is currently the only method that can definitely determine if this material contains asbestos > 0.1% by weight. However, the State of Connecticut Regulations state that bulk

samples shall not be composited for analysis and shall be analyzed for asbestos content by polarized light microscopy (PLM), using the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" found at Appendix A to subpart F in 40 CFR Part 763 as amended, or the current EPA method for the analysis of asbestos in building materials by polarized light microscopy.

TABLE 2

NON-ASBESTOS CONTAINING MATERIALS

TABLE 2
NON-ASBESTOS CONTAINING MATERIALS
SUMMARY TABLE

187-189 Derby Ave.
Debry, CT

AMC Tracking # ASB0818	Lab: EMSL	Lab #622001278
Sample #	**Sample Location**	**Sample Description**
B081801,02	Rooms 01,02	9 inch Floor Tile
B081803,04	Rooms 01,02	Black Mastic Assoc. w/ Floor Tile
B081805,06	Room 06	Stick on Floor Tile
B081807,08,09	Rooms 06,01, 2nd Flr,	Joint Compound
B081810,11,12	Rooms 06,01 2nd Flr.	Sheetrick
B081814,15,16,17,18 ,19,20,21,22	Rooms 02,22,,32	Plaster Skim Coat
B081826,27	Room 05	Green 12 inch Floor Tile
B081828,29	Room 05	Black Mastic Assoc, w/ Floor Tile
B081830,31	Room 22	Wallpaper`
B081834,35	Rooms 32,37	Bottom Layer Floor Tile
B081841,42	Roof	Roof Caulking

Samples in italic and bold documented <1% asbestos. Further testing using TEM NOB method is recommended, if not further analyzed samples can be considered non-asbestos containing and can be discarded as construction debris. However, OSHA work practices and regulations apply.

GENERAL STATEMENTS CONCERNING ASBESTOS INSPECTIONS IN BUILDINGS:

This survey may not have evaluated internal linings or gaskets, if any exist. Before any work is scheduled on a boiler, which would affect these areas (i.e. demolition), samples of linings and gaskets should be analyzed for asbestos content.

This inspection does not represent that all ACM that may be present in or behind walls, ceilings, and floors have been discovered. Review all existing heating and plumbing plans before starting any demolition projects. Ensure that there is a contingency plan for asbestos found during demolitions. Unit prices should be included for any material that may be discovered.

Equipment that operates at high temperature such as kilns, muffle furnaces, flood and arc lights may be insulated with asbestos-containing materials such as block, panels, fabric, braid or gasket.

Cement pipes (roof drains, sewerage drains, etc.) may contain asbestos. Prior to any cutting, sanding, drilling or removal of these materials, bulk sample(s) should be collected and analyzed at an accredited laboratory.

The interior of fire doors may be filled with ACM as a fire retardant. Take the necessary precautions or have bulk samples analyzed before cutting, drilling or otherwise affecting the original integrity of the door.

Certain other materials including, but not limited to, paint, varnish, tape, ceramic tiles and cement have been known to contain asbestos; cutting, sanding, drilling or removal of these materials may release asbestos fibers.

APPENDIX A

LABORATORY RESULTS

EMSL Analytical, Inc.
161 John Roberts Road South Portland, ME 04106
Tel/Fax: (207) 517-6921 / (207) 517-6922
http://www.EMSL.com / portlandlab@emsl.com

EMSL Order:	622001278
Customer ID:	AMCT50
Customer PO:	
Project ID:	

Attention:	Jason Pringle	**Phone:**	(203) 378-5020
	AMC Environmental, LLC	**Fax:**	(203) 375-7344
	30 Hazel Terrace	**Received Date:**	09/10/2020 10:15 AM
	Suite 25	**Analysis Date:**	09/11/2020
	Woodbridge, CT 06525	**Collected Date:**	
Project:	Derby Ave		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B081801 *622001278-0001*	Rm01 - 9 inch Floor	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081802 *622001278-0002*	Rm02 - 9 inch Floor	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081803 *622001278-0003*	Rm01 - Black Mastic Assoc. w/ FT	Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
B081804 *622001278-0004*	Rm02 - Black Mastic Assoc. w/ FT	Black Non-Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
B081805 *622001278-0005*	Rm06 - Stick-On Floor Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081806 *622001278-0006*	Rm06 - Stick-On Floor Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081807 *622001278-0007*	Rm06 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081808 *622001278-0008*	Rm01 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081809 *622001278-0009*	2nd Flr - Joint Compound				Not Submitted
B081810 *622001278-0010*	Rm06 - Sheetrock	Gray Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	None Detected
B081811 *622001278-0011*	Rm01 - Sheetrock	Gray Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	None Detected
B081812 *622001278-0012*	2nd Flr - Sheetrock				Not Submitted
B081813 *622001278-0013*	Rm02 - Plaster Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081814 *622001278-0014*	Rm02 - Plaster Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081815 *622001278-0015*	Rm22 - Plaster Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081816 *622001278-0016*	Rm22 - Plaster Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 09/11/2020 17:58:52

EMSL Analytical, Inc.
161 John Roberts Road South Portland, ME 04106
Tel/Fax: (207) 517-6921 / (207) 517-6922
http://www.EMSL.com / portlandlab@emsl.com

EMSL Order: 622001278
Customer ID: AMCT50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B081817 *622001278-0017*	Rm32 - Plaster Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081818 *622001278-0018*	Rm02 - Plaster Skim Coat	Gray Non-Fibrous Homogeneous	4% Hair	96% Non-fibrous (Other)	None Detected
B081819 *622001278-0019*	Rm02 - Plaster Skim Coat	Gray Non-Fibrous Homogeneous	4% Hair	96% Non-fibrous (Other)	None Detected
B081820 *622001278-0020*	Rm22 - Plaster Skim Coat	Gray Non-Fibrous Homogeneous	4% Hair	96% Non-fibrous (Other)	None Detected
B081821 *622001278-0021*	Rm22 - Plaster Skim Coat	Gray Non-Fibrous Homogeneous	4% Hair	96% Non-fibrous (Other)	None Detected
B081822 *622001278-0022*	Rm32 - Plaster Skim Coat	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081823 *622001278-0023*	Rm05 - Ductwrap	Green Fibrous Homogeneous		50% Non-fibrous (Other)	50% Chrysotile
B081824 *622001278-0024*	Rm05 - Ductwrap				Positive Stop (Not Analyzed)
B081825 *622001278-0025*	Rm05 - Ductwrap				Positive Stop (Not Analyzed)
B081826 *622001278-0026*	Rm05 - Green 12 inch Floor Tile	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
B081827 *622001278-0027*	Rm05 - Green 12 inch Floor Tile	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
B081828 *622001278-0028*	Rm05 - Black Mastic Assoc. w/ FT	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081829 *622001278-0029*	Rm05 - Black Mastic Assoc. w/ FT	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B081830 *622001278-0030*	Rm22 - Wallpaper	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
B081831 *622001278-0031*	Rm22 - Wallpaper	Tan Non-Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
B081832 *622001278-0032*	Rm37 - Stick-On Floor Tile	Tan Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
B081833 *622001278-0033*	Rm32 - Stick-On Floor Tile				Positive Stop (Not Analyzed)
B081834 *622001278-0034*	Rm32 - Bottom Layer	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
B081835 *622001278-0035*	Rm37 - Bottom Layer	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Initial report from: 09/11/2020 17:58:52

EMSL Analytical, Inc.
161 John Roberts Road South Portland, ME 04106
Tel/Fax: (207) 517-6921 / (207) 517-6922
http://www.EMSL.com / portlandlab@emsl.com

EMSL Order:	622001278
Customer ID:	AMCT50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B081836 *622001278-0036*	Rm21 - Stick-On Floor Tile	Tan Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
B081837 *622001278-0037*	Rm21 - Stick-On Floor Tile				Positive Stop (Not Analyzed)
B081838 *622001278-0038*	Roof - Caulking	Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
B081839 *622001278-0039*	Roof - Caulking				Positive Stop (Not Analyzed)
B081840 *622001278-0040*	Roof - Caulking				Positive Stop (Not Analyzed)
B081841 *622001278-0041*	Roof - Asphalt Shingle	Black Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
B081842 *622001278-0042*	Roof - Asphalt Shingle	Black Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected

Analyst(s)
Stephen Severn (19)
Samantha Voigt (15)

Samantha Voigt, Laboratory Manager
or Other Approved Signatory

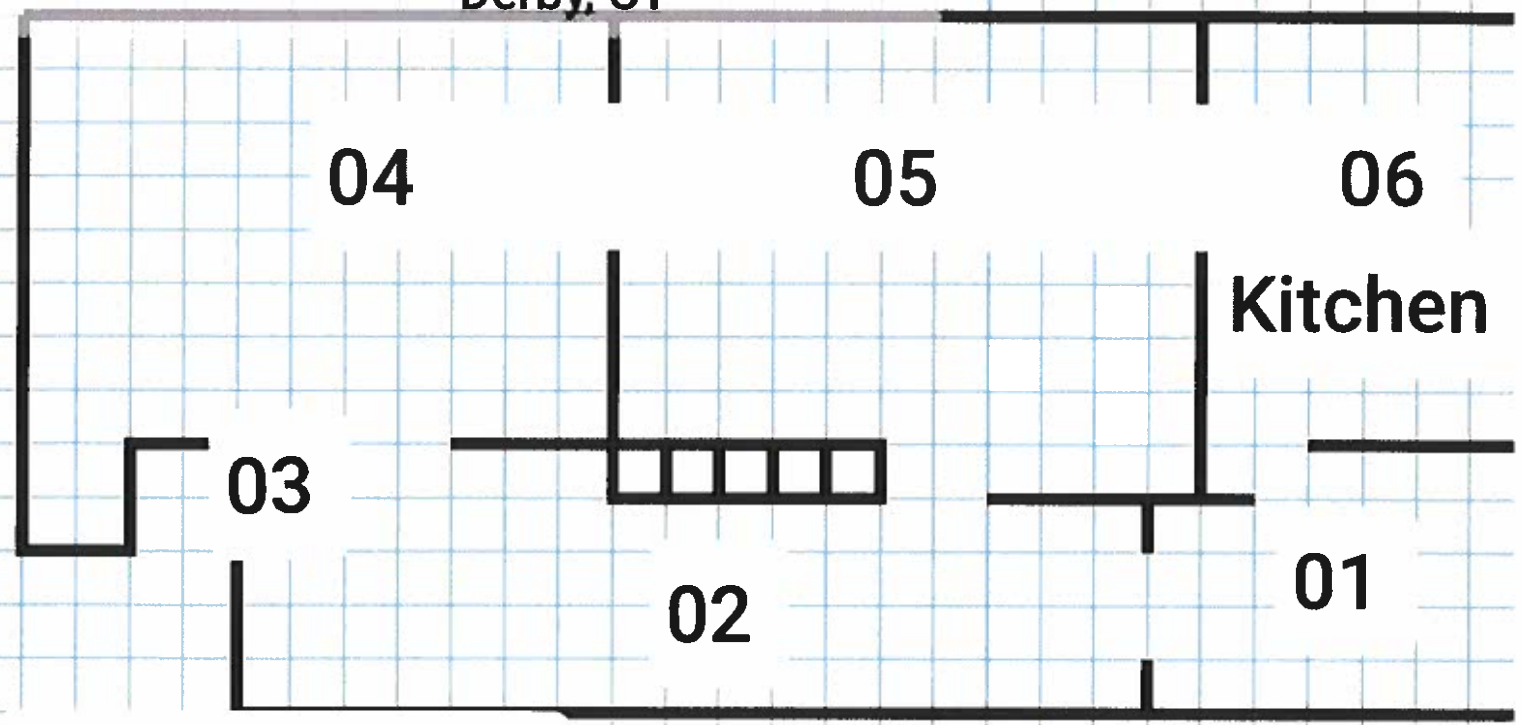
Initial report from: 09/11/2020 17:58:52

APPENDIX B

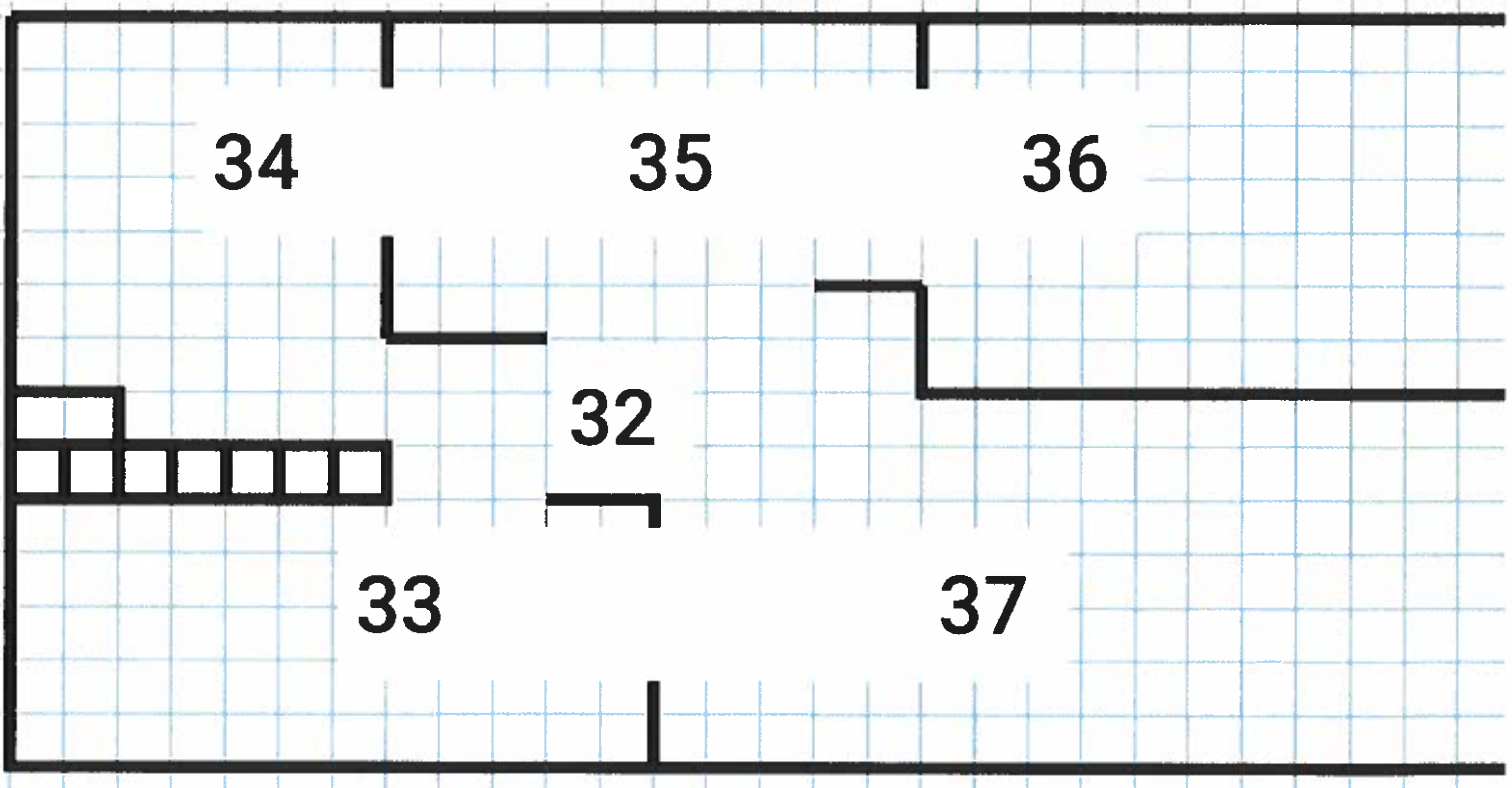
DRAWING

1st Flr.

187 – 189 Derby Ave.
Derby, CT

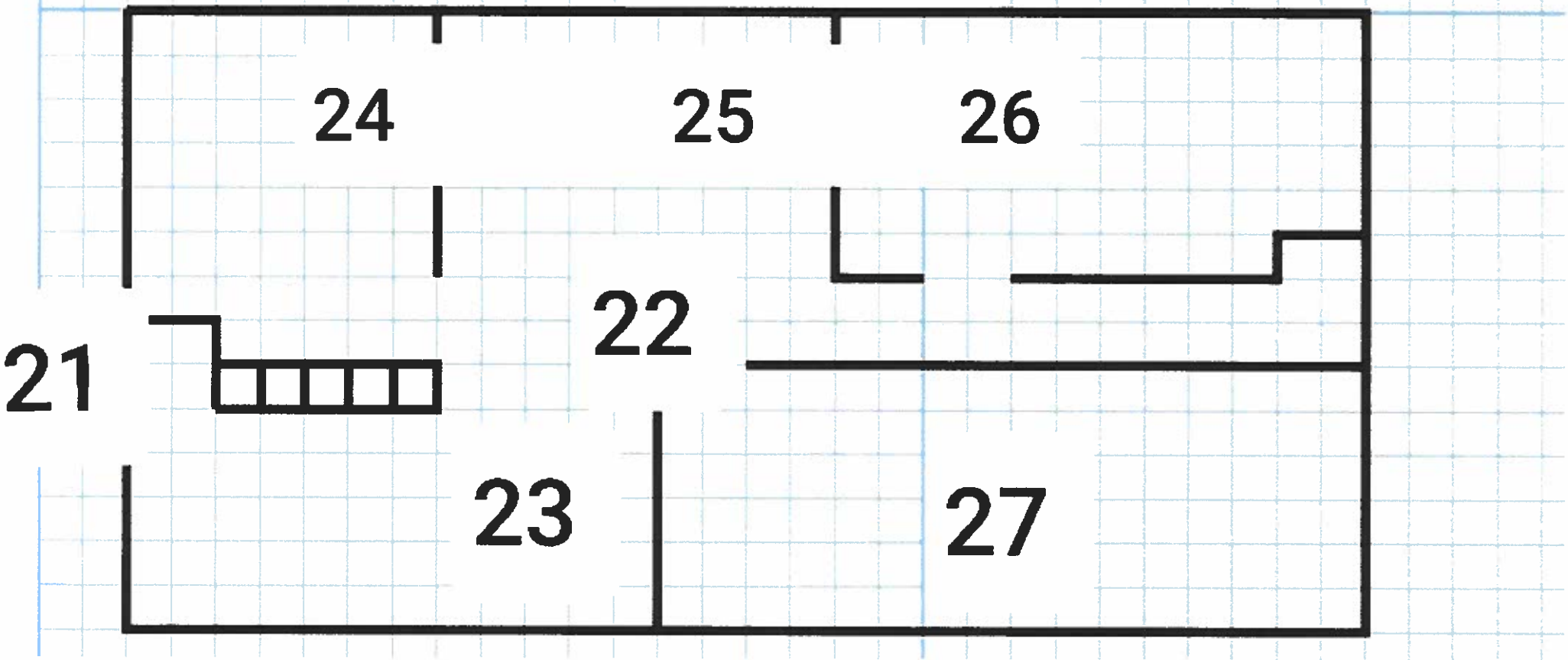


3rd Flr.



2nd Flr.,

187 –189 Derby Ave.
Derby, CT



APPENDIX C

ACCREDITATIONS

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

JASON P. PRINGLE

CERTIFICATE NO
000269

CURRENT THROUGH
09/30/20

VALIDATION NO
03-798439

SIGNATURE

COMMISSIONER