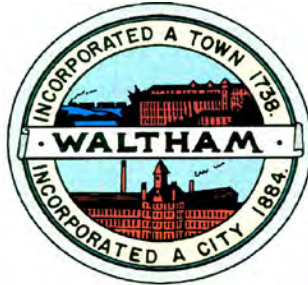


The City of Waltham



**Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:**

**ABATEMENT AND DEMOLITION OF
THE SHRIVER, CERC, KELLY and GREENE BUILDINGS FORMER
FERNALD SCHOOL
(200 Trapelo Road, Waltham MA 02451)**

The GENERAL BID is due: 10:00AM May 2, 2018

PRE BID Meeting and Briefing on Site: 1.00PM April 24, 2018

Meet at Shriver Building, 200 Trapelo Rd, Waltham

LAST DAY FOR WRITTEN QUESTIONS: 12.00Noon April 25, 2018

(To Jpedulla@city.waltham.ma.us)

DIVISION 00

**SECTION 00 02 00
CITY OF WALTHAM
MASSACHUSETTS**

NOTICE TO BIDDERS

**Abatement and Demolition of Shriver, CERC, Kelley and Greene Buildings
Waltham, Massachusetts**

The City of Waltham, Massachusetts invites sealed bids from Contractors for the **Abatement and Demolition of Shriver, CERC, Kelley and Greene Buildings, 200 Trapelo Rd., Waltham, Massachusetts**. The work consists of the abatement, demolition and removal of all components of the Shriver, CERC, Kelly, and Green Buildings

PLANS, SPECIFICATIONS and other Contract Documents may be obtained by visiting the City's Web Site at www.city.waltham.ma.us/open-bids

Copies of Addenda will be e- mailed to the registered Bidders without charge. Addenda will also be posted on the web site above

Sealed **BIDS** for this project will be accepted from eligible bidders at the Purchasing Department, Waltham City Hall, 610 Main Street, Waltham, MA 02452 until **10.00AM May 2, 2018** at which place and time they shall be publicly opened, read aloud and recorded for presentation to the Awarding Authority.

A **PRE-BID CONFERENCE AND SITE INSPECTION** will be held for all interested parties at **1.00 PM April 24, 2018** at the site of the **Shriver Building, 200 Trapelo Rd, Waltham**. Attendance at this pre-bid conference is strongly recommended but not mandatory for parties submitting a bid. It will be the only opportunity to visit the site prior to the bid opening.

LAST DAY FOR WRITTEN QUESTIONS is at 12 noon April 25, 2018 Questions are to be sent via e-mail only to Jpedulla@city.waltham.ma.us

Each general bid shall be accompanied by a bid deposit in the form of a bid bond, certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the City of Waltham in the amount of five percent (5%) of the value of the bid

Bids shall be made on the basis of the Minimum Wage Rates as determined by the Commissioner of Labor and Industries, Pursuant to the Provisions of Chapter 149, Sections 26 to 27D inclusive of Massachusetts General Laws, a copy of which is found in the City's Web site at www.city.waltham.ma.us/open-bids .

Bidders' selection procedures and contract award shall be in conformity with the rules of Commonwealth of Massachusetts statute Chapter 149.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

Performance and Labor and Materials payment bonds each in the full amount of the contract price will be required from the successful bidder.

The Awarding Authority reserves the right to reject any or all general bids, if it be in the public interest to do so, and to reject any sub-bid on any sub-trade if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

The successful bidder will be required to furnish a Certificate of Insurance, naming the City of Waltham as an Additional Named Insured with a waiver of subrogation, for General Liability and Vehicle Liability in the amount of \$1,000,000 per occurrence and \$1,000,000 in the aggregate and Worker's Compensation Insurance as prescribed by law.

In accordance with the laws of the Commonwealth of Massachusetts the undersigned certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by OSHA that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

CITY OF WALTHAM

Joseph Pedulla, CPO
Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

SECTION 00 10 00 - INSTRUCTION TO BIDDERS

PART 1 - GENERAL

1.01 SCHEDULE OF DATES

- A. Advertisement appears in Central Register, Plans and Specifications ready for Bidders at the Offices of the Waltham Purchasing Agent after 8:30 P.M. on November 8, 2017.
- B. **Pre-bid walkthrough and site inspection: 1.00PM April 24, 2018.** Meet at **Shriver Building 200 Trapelo Rd., Waltham. MA 02451**
- C. **Questions** and requests for interpretations may be submitted in writing via e-mail ONLY to Jpedulla@city.waltham.ma.us up to **12:00 noon April 25, 2018.**
- D. Addenda will be issued with interpretations as determined by the Purchasing Department only via e-mail and posting on the web site.
- E. **General Bids Deadline: 10:00 A.M. May 2, 2018,** in the Purchasing Department, City Hall, 610 Main Street, Waltham, MA 02452, Attn: J. Pedulla, CPO, where the bids will be publicly open and read.

1.02 BIDDING PROCEDURE

- A. Bids for the work are subject to the provisions of General Laws, Chapter 149, as amended. Regulations governing the bidding procedures as set forth in the above mentioned amended General Laws must be followed.
- B. In the event of any inconsistencies between any of the provisions of these Contract Documents and of the cited statute, anything herein to the contrary notwithstanding, the provisions of the said statute shall control.
- C. No General Bid received by the Awarding Authority after the time respectively established herein for the opening of General Bids will be considered, regardless of the cause for the delay in the receipt of any such bid.

1.03 WITHDRAWAL OF BIDS

- A. Bids may be withdrawn prior to the time respectively established for the opening of General Bids only on written request to the Awarding Authority.

1.04 INTERPRETATION OF CONTRACT DOCUMENTS

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

- A. No oral interpretation will be made to any bidder. All questions or requests for interpretations must be made in writing to the Architect.
- B. Every interpretation made to a bidder will be in the form of an Addendum to the drawings and/or specifications, which will be made available to all persons to whom Contract Documents have been issued.
- C. Failure of the Awarding Authority to send, or of any bidder to receive any such Addendum shall not relieve any bidder from obligation under his bid as submitted.
- D. All such Addenda shall become a part of the Contract Documents.

1.05 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. Each bidder may visit the site of the proposed work and fully acquaint himself with conditions as they exist, and may also thoroughly examine the Contract Documents. Failure of any bidder to visit the site and acquaint himself with the Contract Documents shall not relieve any bidder from any obligation with respect to his bid.
- B. By submitting a bid, the bidder agrees that the Contract Documents are adequate and that the required result for a full and complete installation can be produced. The successful bidder shall furnish any and all labor, materials, insurance, permits and all other items needed to produce the required result to the satisfaction of the Awarding Authority.

1.06 BID SECURITY

- A. The General Contractor's bid must be accompanied by bid security in the amount of five percent (5%) of the bid.
- B. At the option of the bidder, the security may be bid bond, certified, treasurer's or cashier's check issued by a responsible bank or trust company. No other type of bid security is acceptable.

Bid Bonds shall be issued by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts.

- C. Certified, Treasurer's or Cashier's check shall be made payable to the City of Waltham, Massachusetts.
- D. The bid security shall secure the execution of the Contract and the furnishing of a Performance and Payment Bond by the successful General Bidder for 100% of the contract value.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

- E. Should any General Bidder to whom an award is made fail to enter into a contract therefore within five (5) days, Saturdays, Sundays and Legal Holidays, excluded, after notice of award has been mailed to him or fail within such time to furnish a Performance Bond and also a Labor and Materials or Payment Bond as required, the amount so received from such General Bidder through his Bid Bond, Certified, Treasurer's or Cashier's check as bid deposit shall become the property of the City of Waltham, Massachusetts as liquidated damages; provided that the amount of the bid deposit, which becomes the property of the City of Waltham, Massachusetts, shall not in any event exceed the difference between his bid price and the bid price of the next lowest responsible and eligible bidder; and provided further that, in case of death, disability, bona fide clerical error or mechanical error of a substantial nature, or other unforeseen circumstances affecting the General Bidder, his deposit shall be returned to him.

1.07 BID FORM

- A. General Bids shall be submitted on the "FORM FOR GENERAL BID" enclosed. Erasures or other changes must be explained or noted over the signature of the bidder.
- B. Bid forms must be completely filled in. Bids which are incomplete, conditional, or obscure, or which contain additions not called for will be rejected.
- C. General Bidders shall submit one set of executed bid forms to the Awarding Authority.

1.08 SUBMISSION OF BIDS AND BID SECURITIES

- A. Each bid submitted by a General Contractor shall be enclosed in a sealed envelope that shall be placed with the bid security in an outer envelope. The outer envelope shall be sealed and clearly marked as follows:

(Firm Name): _____
Abatement and Demolition of four (4) Fernald Buildings

1.09 AWARD OF CONTRACT

- A. The Contract shall be awarded to the lowest responsible and eligible General Bidder on the basis of competitive bids in accordance with the procedure set forth in the provision of Chapter 30, §39M of the General Laws of the Commonwealth of Massachusetts.
- B. If the bidder selected as the General Contractor fails to perform his agreement to execute a contract in accordance with the terms of his General Bid, and furnish a

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

Performance Bond and also a Labor and Materials or Payment Bond, as stated in his General Bid an award shall be made to the next lowest responsible and eligible bidder.

- C. The words “lowest responsible and eligible bidder” shall be the bidder whose name is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work and who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, on the work. Essential information in regard to such qualifications shall be submitted in such form as the Awarding Authority may require.
- D. Action on the award will be taken within sixty (60) days, Saturdays, Sundays and Legal Holidays excluded after the opening of the bids.

1.10 SECURITY FOR FAITHFUL PERFORMANCE

- A. The successful bidder must deliver to the Awarding Authority simultaneously with his delivery of the executed contract, an executed Performance Bond, and also a Labor and materials or Payment Bond, each issued by a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of One Hundred Percent (100%) of the Contract Price, as surety for the faithful performance of his contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Said bonds shall provide that, if the General Contractor fails or refuses to complete the Contract, the Surety Company will be obligated to do so.
- B. Premiums are to be paid by the General Contractor, and are to be included in the Contract Price.

1.11 EQUAL OPPORTUNITY

- A. The City of Waltham is an Equal Opportunity employer and will require compliance with the minority business enterprise plan (MBE) on file in the Purchasing Department

1.12 PRE-BID WALK-THRU

- A. A pre-bid conference will be held at the site on **April 24 2018, at 10:00 AM** at the **Shriver Building, 200 Trapelo Rd., Waltham, MA 02451**. Interested parties are encouraged to attend given that this will be the only time the site is available prior to the submission of bids. Further, prior to the bid opening, potential bidders may not go onto the site any time other than the aforementioned pre-bid conference.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

1.13 SITE VISITS

- A. Prospective bidders are prohibited from going onto the site prior to the Bid Opening or any time other than the pre-bid walk-thru, as set forth in Section 1.12 above, unless authorized by the Architect in an Addendum to the bid documents.

1.14 CONTRACT DOCUMENTS

- A. The Awarding Authority shall make available the bid documents and addenda in the City Web site at www.city.waltham.ma.us/open-bids. No plans will be mailed.

1.15 EQUALITY

- A. Except where otherwise specifically provided to the contrary, the words “or approved equal” are hereby inserted immediately following the name or description of each article, assembly, system, or any component part thereof in the Contract Documents. It is the Contractor’s responsibility to provide all the research and documentation that would prove a product or assembly is “equal”. Failure to provide research or documentation does not alleviate the Contractor’s responsibility to meet the schedule.

1.16 TAX FREE NUMBER

- A. The City of Waltham has a tax-free number.

1.17 SCHEDULE

- A. **The work of the Contract shall be Substantially Complete in 240 calendar days after the date of the Notice-to-Proceed and not including winter shut-down.**

1.18 INTENTIONALLY LEFT BLANK

1.19 WEEKLY JOB MEETINGS

- A. There will be a weekly job meeting at the site on the same agreed-upon day and time. Time will be provided to discuss and view the progress of the work and to answer questions. The Contractor’s job Superintendent and Project Manager shall attend each meeting. The City reserves the right to have job meetings conducted in the location of its choosing.

1.20 PROJECT SUPERINTENDENT

- A. The Contractor shall provide the same person as Superintendent for the entire duration of the project. Failure to maintain the same person in this position shall

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

result in a One Thousand Dollar (\$1,000.00) penalty per incident which shall cover the Architect's time to re-orient new personnel.

1.21 AWARD

- A. The Awarding Authority reserves the right to reject any or all bids if it be in the public interest to do so, and to act upon the bids and make its award in any lawful manner.

1.22 PREVAILING WAGE SCHEDULE

- A. Bids shall be made on the basis of the Prevailing Wage Schedule, as determined by the Commissioner of Labor and Industries, pursuant to the provision of the Massachusetts General Laws. The Prevailing wage Schedule for this project can be found in the City's web Site at www.city.waltham.ma.us/open-bids

1.23 CONFLICT OF INTEREST

- A. A bidder filing a proposal thereby certifies that the proposal is made in good faith, without fraud, collusion, or connection of any kind with any other bidder for the same work, and that the bidder is competing solely on its own behalf without connection with, or obligation to, any undisclosed person or firm.

1.24 PROCEED ORDERS

- A. No bidder is to proceed without a proceed order as set out in the contract.

1.25 INTENTIONALLY LEFT BLANK

1.26 COMPLIANCE WITH MASSACHUSETTS GENERAL LAWS

- A. Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A, I certify under the penalty of perjury that I, to the best of my knowledge and belief have filed all state tax returns and paid all the state taxes required under law.

1.27 CONSTRUCTION BARRICADES

- A. The General Contractor shall provide all barricades to enclose the work area to prevent unauthorized access to the site.
 - 1. The barricades shall provide enough room for all construction activities to be performed while separated from pedestrians, students, and staff on site.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

2. Safety is the sole responsibility of the Contractor and any barricades necessary to protect the work and the public shall be provided.
3. Provide entrance protection.

1.28 INSURANCE

- A. The contractor shall purchase and maintain, at his expense all insurance required by the Contract. Documents and all insurance required by the applicable laws of Massachusetts, including but not limited to, General Laws, Chapter 146, in connection with all hoisting equipment.
- B. The Contractor shall purchase and maintain such insurance as will protect him from claims under workmen's compensation acts and from claims for damages because of bodily injury, including death and all property damage including, without limitation, damage to buildings and adjoining the site of construction which might arise from and during operations under this contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them including:

1. Statutory Worker's Compensation and Employer's Liability

The contractor shall provide insurance for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws (so-called Worker's Compensation Act) to all persons to be employed under this contract and shall continue in force such insurance as aforesaid shall be deemed a material breach of this Contract and shall operate as an immediate termination thereof. The contractor shall, without limiting the generality of the foregoing, conform to the provisions of Section 34A of Chapter 149 of the General Laws, which Section is incorporated herein by reference and made a part of hereof.

2. Comprehensive General Liability Insurance

Minimum bodily injury limits of \$ 1,000,000 per person and \$ 1,000,000 per accident, and property damage limits of \$ 500,000 per accident and \$ 1,000,000 aggregate during any 12 month period, shall include the following:

- a. Public liability (bodily injury and property damage)
- b. X.C.U. (explosion, collapse, and underground utilities)
- c. Independent contractor's protective liability.
- d. Products and completed operations.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

- e. Save harmless agreement for Owner and Architects set forth in ARTICLE 10.11 of the GENERAL CONDITIONS.
- 3. Comprehensive All Risk Motor Vehicle Liability Insurance

Minimum bodily injury limits of \$ 500,000 per person, \$ 1,000,000 per accident, and property damage limit of \$ 1,000,000 per accident.
- 4. All Risk Insurance

Covering all Contractors' equipment with a provision for Waiver of Subrogation against the Owner.
- 5. Excess Liability Insurance in Umbrella Form with combined Bodily Injury and Property Damage Limit of \$ 1,000,000.
- 6. **City of Waltham shall be a Named Additional Insured with a Waiver of Subrogation on the insurance policy for this project.**

1.29 SITE ACCESS

- A. The General Contractor shall gain access to the site via routes approved by the Owner.
 - 1. The General Contractor as part of the bid price will restore all roads, curbs, driveways, walks and grassed or landscaped areas damaged during construction.

1.30 CONSTRUCTION TRAILER

- A. The General Contractor shall locate the construction trailer at locations approved by the Owner.
- B. The General Contractor shall locate all on site stored or staged materials within the enclosed area designated by the Owner.

1.31 INTENTIONALLY LEFT BLANK

1.32 COMPLETE BID FORMS

- A. Please Note: Each bidder must fill in all the blanks on all the bid forms, even if the information is "zero dollars" or "not applicable". Also, please acknowledge all Addenda issued by the Awarding Authority.

2.00 FUNDS APPROPRIATION and LOAN AUTHORIZATION.

ABATEMENT AND DEMOLITION OF SHRIVER, CERC, KELLY and GREENE
BUILDINGS, FORMER FERNALD SCHOOL

- A THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

3.0 CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

- A All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor

Signature of Individual or Corporate Name

By:

(Signature of Corporate Officer if applicable)

Title: _____

Social Security Number or Federal Identification Number: _____

END OF SECTION

Abatement and Demolition of Shriver, CERC, Kelley and Greene Buildings, 200 Trapelo Rd., Waltham, Massachusetts.

SECTION 00 31 00

FORM FOR GENERAL BID

Abatement and Demolition of Shriver, CERC, Kelley and Greene Buildings, 200 Trapelo Rd., Waltham, Massachusetts.

General Bid Opening Date: 10.00 AM May 2, 2018

Joseph Pedulla, CPO
City of Waltham
610 Main Street
Waltham, MA 02452

A. Basic Price

The undersigned: _____

(Please type or print the business name of the bidding firm)

having visited the site of the above project and having familiarized myself with the local conditions affecting the cost of the work and with the contract documents, including Amendments and Addenda No's. _____ hereby proposes to furnish all labor (including Sub Bids), materials, tools, equipment, insurance, permits and taxes, and to do and lawfully perform all things as provided in the specifications, all in accordance with the contract documents, for the sum of:

1) Shriver Building

TOTAL Base Bid (in words) _____ **Dollars, \$** _____

2) CERC Building

TOTAL Base Bid (in words) _____ **Dollars, \$** _____

3) Kelley Building

TOTAL Base Bid (in words) _____ **Dollars, \$** _____

4) Greene Building

TOTAL Base Bid (in words) _____ **Dollars, \$** _____

GRAND TOTAL (Combined, Both Sites, 1-4)

(in words) _____ **Dollars, \$** _____

The Bidder further attest that the above prices are all **Inclusive and Fixed prices**

B. Left Blank Intentionally

C. The undersigned agrees that, if s/he is selected as General Contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the

Abatement and Demolition of Shriver, CERC, Kelley and Greene Buildings, 200 Trapelo Rd., Waltham, Massachusetts.

Awarding Authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each issued by a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of the contract price, the premiums for which are to be paid by the General Contractor and are included in the contract price.

- D. The undersigned certifies that s/he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A.
- E. The undersigned as Bidder certifies that if this proposal is accepted, s/he will furnish to the City of Waltham with the invoice for the material or equipment supplied two copies of any and all Material Safety Data Sheets applicable to such material or equipment, as required by M.G.L. Chapter 111F, so called "Right to Know Law".
- F. The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. The word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

G. Substantial Completion

- 1. The work of the Contract shall be Substantially Completed in two hundred and forty **(240) calendar days not including winter or weather shut-downs.**

- H. In accordance with M.G.L., the undersigned certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by OSHA that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Sincerely,

(Bidder)

(Address of Bidder)

By:

(Title - Owner*, Partner*)

(Seal, if Corporation)

By:

(If Corporation - Name and Office)

* If the business owned by the individual or partnership is conducted under a trade or assumed name, a certified copy of doing business under an assumed name should be annexed.

**Section 00 50 00
FORM OF CONTRACT**

AGREEMENT made between the **CITY OF WALTHAM**, a municipal corporation duly established under the laws of the Commonwealth of Massachusetts, through its Mayor thereunto duly authorized, hereinafter called the OWNER, and _____ having a usual place of business at _____ hereinafter called the CONTRACTOR.

The CONTRACTOR having accepted the Public Bid terms, condition and specifications for the **Shriver, Cerc, Kelley, Green Abatement & Demolition** all of which are hereto attached and made a part hereof, hereinafter called the DOCUMENTS, and the CONTRACTOR hereby agrees to provide the labor, materials, services and work in accordance with the quotation, bid, proposal and said DOCUMENTS

If applicable, all contractors must comply with the prevailing wage rate law as required under the provisions of all Massachusetts General Law

All appropriate Bonds and Certificates of Insurance, per specifications, will be submitted before Contract is signed. This Contract shall not be in effect nor any work commenced until the Mayor signs the Contract.

IN WITNESS WHEREOF, the OWNER sets its hand and corporate seal through its Purchasing Agent thereunto duly authorized, and the CONTRACTOR hereunto sets its hand and seal on the day and year first above written.

Bid package and company response are incorporated herewith by reference.

APPROVED AS TO FORM ONLY

John Cervone,
City Solicitor
Date_____

APPROVED, MAYOR

Jeannette A. McCarthy,
Mayor
Date_____

WALTHAM BUILDING DEPARTMENT

William Forte, Building Superintendent
Date_____

CITY OF WALTHAM

Joseph P. Pedulla, CPO
Purchasing Agent
Date: _____

FOR THE COMPANY

Authorized Signature

Print Name
Date _____

AUDITING DEPT.

Paul G. Centofanti,
City Auditor
Date_____

SECTION 00 50 10

PERFORMANCE BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,

_____ as

principal and _____ as surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____ DOLLARS (\$ _____)

(lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____ heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the performance of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this

_____ day of _____, 20_____.

WITNESSES:

(CONTRACTOR) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY

Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

SECTION 00 50 20

PAYMENT BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,

_____ as

principal and _____ as
surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____ DOLLARS (\$ _____)
(lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____ heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the payment of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who

may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this

_____ day of _____, 20____.

WITNESSES:

(CONTRACTOR)

(SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY

Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

SECTION 00 50 30

GENERAL CONDITIONS

1. INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words “or equal as approved” are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City’s property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be

suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. INSURANCE

A. WORKMAN’S COMPENSATION: The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

B. COMPREHENSIVE GENERAL LIABILITY

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

C. AUTOMOBILE (VEHICLE) LIABILITY

Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate

D. UMBRELLA POLICY

General liability	\$2,000,000
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Your bid response must include a Certificate of Insurance with the above limits as a minimum.

In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: “The City of Waltham is a named Additional Insured for all Insurance”. The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

7. LABOR AND MATERIALS BOND

The Contractor agrees to execute and deliver to the City, a Performance Bond and a Payment Bond each equal to 100% of the contract value. This contract shall not be in force until said

bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.

INCLUDE A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS WITH HIS/HERS BID.

8. PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

9. PREVAILING WAGES

The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. Copies of the Prevailing Wage Schedule is found on line at www.city.waltham.ma.us/open-bids

10. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

11. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

12. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

13. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

14. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company’s response is a “not-to- Exceed” amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City’s Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

16. FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder’s financial stability.

17 BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services

in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

18 RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

19. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

20. BID OPENING INCLEMENT WEATHER

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

21 **FUNDS APPROPRIATION.**

THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

22 THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.

Section 00 50 40

Compliance

The documents in this section shall bear "wet" Original signatures and returned with your bid

Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package.**

Purchasing Department

City of Waltham
610 Main Street
Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

Section Index

Check when Complete

- Non-collusion form and Tax Compliance form..... _____
- Corporation Identification Form..... _____
- Certificate of Vote Authorization..... _____
- Certificate of Insurance (showing all limits of WC &GL)..... _____
- Three (3) References..... _____
- 5% Bid Bond or Certified Check>..... _____
- Debarment Certificate _____
- Prevailing Wage Certificate..... _____
- Right-to-know Law..... _____
- OSHA 10 Certificate for all Assigned Employees (MGL ch30, §39M and Ch 149) _____

Before the commencement of the Job, the contractor must provide to the above office:

- Performance and Payment Bonds **each** for 100% of the contract value and naming the City of Waltham

Your Company's Name: _____

Service or Product Bid _____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____, _____
(Signature of person signing bid or proposal) Date

(Name of business)

Wet Signature Required

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____, _____
Signature of person submitting bid or proposal Date

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

SIGNED:

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

If an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature _____

Title _____

Business Address _____ (POST OFFICE BOX NUMBER NOT ACCEPTABLE)

State Telephone Number _____

Today's Date _____

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

**WEEKLY PAYROLL RECORDS REPORT &
STATEMENT OF COMPLIANCE**

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 200_____

I _____,
(Name of signatory party) (Title)

I do hereby state that I pay or supervise the payment of the persons employed by

_____ on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____, Title _____

Print _____

WEEKLY PAYROLL REPORT FORM

Company Name: _____

Prime Contractor

Project Name: _____

Subcontractor

List Prime Contractor: _____

Awarding Auth.: _____

Employer Signature: _____

Work Week Ending: _____

Print Name & Title: _____

Final Report

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount
		S	M	T	W	T	F	S			(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.		

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature Date

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

Print name _____,

Date _____

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than \$10,000.00 have successfully completed a course in construction safety and health approved by the **United States Occupational Safety and Health Administration** that is at least **10 hours** in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

Date _____

See Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

DIVISION 1

SECTION 011000

SUMMARY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 01 through 31 which are hereby made a part of this Section of the Specifications.
- B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS.

1.2 DEFINITIONS

- A. The following terms shall be applicable to these Specifications:
 - 1. **“City of Waltham”**: Refers to the property owner, City of Waltham, 610 Main Street, Waltham, Massachusetts 02452. Mr. Joseph Pedulla, Chief Procurement Officer. Telephone: 781-314-3000.
 - 2. **“Designer and Environmental Consultant”**: Refers to EFI Global, Inc., 155 West Street, Suite 6, Wilmington, Massachusetts 01887. Project Designer: Sean Cassidy. Telephone: 978-688-3736.
 - 3. **“Contractor”**: Refers to General Contractor or Demolition Contractor who has been awarded the overall contract for performance of the Demolition work outlined by these Contract Documents.
 - 4. **“Subcontractor”**: Refers to any contractor who is working under the direct supervision of the Contractor including but not limited to asbestos, hazardous materials, and PCB remediation workers.
- B. The terms are provided to facilitate communication but do not supersede the legal definitions provided in the Contract.

1.3 REQUIREMENTS INCLUDED

- A. Work under this Contract.
- B. Examination of site and documents.
- C. Contractor Qualifications.

SHRIVER, CERC, KELLY, GREENE BUILDING DEMOLITION
FORMER FERNALD SCHOOL
WALTHAM, MASSACHUSETTS

- D. Contract method.
- E. Work sequence.
- F. Supervision of Work.
- G. Contractor use of premises.
- H. Coordination.
- I. Field engineering.
- J. Reference standards.
- K. Preconstruction conference.
- L. Project meetings.
- M. Permits, inspection, and testing required by governing authorities.
- N. Cutting, coring, patching, unless otherwise indicated.
- O. Debris removal.
- P. Field measurements.
- Q. Safety regulations.
- R. OSHA safety and health course documentation.
- S. Damage responsibility.
- T. User Agency occupancy.
- U. Asbestos and Hazardous Materials discovery.
- V. Special requirements.
- W. List of Drawings.

1.4 WORK UNDER THIS CONTRACT

- A. In general and without limitation, the work to be done under this Contract consists of the abatement, demolition and removal of all components of the Shriver, CERC, Kelly, and Green Buildings located on the grounds of the Former Fernald School in Waltham, Massachusetts.
- B. A general description of the work to be performed under this Contract shall include, but not be limited to, the following operations:

SHRIVER, CERC, KELLY, GREENE BUILDING DEMOLITION
FORMER FERNALD SCHOOL
WALTHAM, MASSACHUSETTS

1. Apply for, pay for, and secure any and all permits required from local, state, and federal agencies, and other authorities having jurisdiction over the work. All city permitting fees are waived. The work includes PCB remediation, asbestos abatement, miscellaneous hazardous materials removal and disposal, building demolition, and selective demolition on the Site, including: submitting, revising, and re-submitting all required plans, permits, and notifications.
2. Preparation and submission of required project plans including the Contractor's PCB Remediation Work Plan, Asbestos Bulk Loading Plan(s) for MassDEP (if required), Health and Safety Plan, and project schedule. The Contractor's PCB Remediation Work Plan shall be finalized, including the City of Waltham and the Designer's comments, within two weeks of receiving Notice To Proceed. A draft PCB remediation Work Plan shall be submitted with the Contractor's bid for City of Waltham and the Designer's review.
3. Mobilization to the Site of all equipment, materials, labor, and required vehicles.
4. Provide a drawing for the installation of a truck wash station at each of the Site buildings.
5. Verification of existing conditions including but not limited to access constraints, availability of utilities for temporary connections, site constraints, review of existing documentation, etc.
6. Erect all staging, scaffolding, planking, etc. to access asbestos-containing materials, PCB-containing materials, and other hazardous materials for removal. Staging and scaffolding installation shall require a design stamped by a professional engineer registered in the Commonwealth of Massachusetts and shall be reviewed by the Designer.
7. Provide an electrical subcontractor to ensure lock-out tag-out procedures are observed and to connect electrical equipment required for designated material removal to the on-site electricity. The Contractor shall provide temporary power from existing electrical panels and transformers for all of its operations including tools, equipment, temporary lighting, smoke/heat detectors, fire protection, safety equipment, etc. Provide generator power, as necessary, for the portions of or for the entire duration of the project.
8. Specific PCB Remediation Scope of Work:

Kelly Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all window and door caulking, window & door frames, seam & expansion joint caulking, and exterior brick masonry.

Shriver Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all interior and exterior window caulking, door caulking associated with exterior doors, window & door frames, seam & expansion joint caulking, pre-cast & cast in place concrete, and exterior brick masonry.

CERC Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all interior and exterior window caulking, interior and exterior door caulking, interior CMU block walls, window & door frames, seam & expansion joint

SHRIVER, CERC, KELLY, GREENE BUILDING DEMOLITION
FORMER FERNALD SCHOOL
WALTHAM, MASSACHUSETTS

caulking, impacted steel columns/beams, pre-cast & cast in place concrete, and exterior brick masonry.

9. Removal, management, transportation and off-site disposal of all interior and exterior PCB-containing caulk between masonry, concrete, window surrounds, doors, metal frames, metal flashing, piping, throughout the Shriver & CERC buildings. Removal, management, transportation and off-site disposal of all exterior PCB-containing caulk between masonry, concrete, window surrounds, and window frames on the exterior of the Kelly building. Removal of all interior and exterior windows, frames, doors, and from the CERC building. These materials and the substrate to which they are adhered shall be considered as PCB Bulk Product Waste and managed in accordance with 40 CFR 761. All exterior brick masonry shall be removed and disposed as PCB bulk product waste. Door caulk at the Kelly Building is also an asbestos-containing material that must be removed using manual labor prior to demolition of the brick façade.
10. Removal, management, transportation, and off-site disposal as PCB Bulk Product Waste of all interior and exterior building materials in contact with PCB-Bulk Product Waste caulking, including but not limited to, window and door frames, louvers, metal studs/framing, wood/plywood, support frames, steel columns and beams, wiring, filler material, conduit, structural steel, foam backer rod, rubber gasketing/backer rods, metal channel with fiberglass insulation, fasteners, ties, rebar, plaster, lathe, plaster framework, piping, ductwork, insulation, fireproofing, concrete, CMU, concrete, and brick. No metal decontamination will be allowed under this contract.
11. Transportation and lawful off-site recycling and/or disposal of concrete and masonry that contains PCB concentrations of less than one milligram per kilogram.
12. Transportation and lawful disposal of concrete and masonry (including CMU) that contains PCB concentrations greater than fifty milligrams per kilogram. This material will be considered PCB Bulk Product Waste and managed in accordance with 40 CFR 761. Prior to removal, CMU and brick materials classified as PCB Bulk Product Waste shall be fully and completely marked with a bright marking paint. Metal ties and rebar within the PCB Bulk Product Waste removal zone shall also be marked with a bright-colored paint and disposed by the Contractor as PCB Bulk Product Waste.
13. Prior to removal, concrete materials classified as PCB Bulk Product Waste, as well as, metal ties and rebar, shall be marked with a bright marking paint.
14. Removal of PCB impacted concrete columns, floor and ceiling slab sections, and spandrel beams associated with the Shriver Building that are in contact with PCB-containing caulk and disposal as PCB Bulk Product Waste under the performance-based disposal provisions of 40 CFR 761. Prior to removal, concrete materials classified as PCB Bulk Product Waste, as well as, metal ties and rebar, shall be marked with a bright marking paint.
15. Removal, handling, transportation, and lawful disposal of all disposable personnel protection equipment and incidental materials.
16. Provide the City of Waltham and the Designer with required waste disposal documentation. Payment will be made only upon receipt of documentation from the disposal facility.
17. Removal of all interior and exterior asbestos-containing materials (ACMs), asbestos-contaminated materials, hazardous materials, containerized wastes, and proper packaging and off-site disposal.

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18. Asbestos-containing debris is present throughout the Kelly Building. All non-porous (metal) items stored within the building must be thoroughly decontaminated and disposed off site. Porous items, such as furniture, wood, cardboard, paper products, etc. must be packaged and disposed as ACWM.
 19. Contractor is responsible for conducting a thorough walkthrough of the Kelly, Shriver, and CERC buildings to identify locations on the interior and exterior of the building where caulk is present or formerly present.
 20. Complete removal and disposal of the Shriver, CERC, Kelly, and Greene building structures, foundations, footings, as outlined in these Specifications.
 21. Excavation, site clearing, and site work as outlined in these Specifications.
 22. Demobilization of all equipment and materials from the Site.
- C. The Scope of Work, without limiting the generality thereof, includes all personnel, labor, materials, equipment, and services required to perform the work described fully in the Specifications.
- D. The Massachusetts Standard Labor Wage rates, as outlined in the exhibits, will be used in the construction of this project. The Prevailing Wages Schedule can be found at www.city.waltham.ma.us/bids

1.5 SPECIAL CONDITIONS

- A. It should be understood by the Contractor that portions of the Fernald School site need to be accessible during the project duration and the Contractor must be sensitive to the fact that the City of Waltham personnel will be accessing the roadways and other buildings throughout the Site. Any road closures or construction activity that requires police detail shall be the responsibility of the Contractor.
- B. Power as currently available at the Site will be made available to the Contractor for use on the Project. The Contractor is responsible to follow all applicable standards and codes and for performing lock-out, tag-out activities as required to perform the work safely (e.g. providing temporary lighting). The Contractor is responsible for supplying generator power, as required to complete the project.
- C. Domestic water is not available within the buildings. There are fire hydrants located sporadically throughout the Fernald School site that may be used during the Project. The Contractor shall coordinate with the City of Waltham Fire Department to obtain access to hydrants. The Contractor shall obtain flow meters and backflow preventers from the City and shall be responsible for all costs associated with obtaining and installing the meters and preventers. The Contractor will be responsible for all costs associated with the water supply. The Contractor shall provide water trucks to supplement water available via fire hydrants if necessary.
- D. The buildings have passenger elevators. None of the elevators are available for use. The elevators must remain out of service, with the fuses removed and main line disconnects maintained in the off position.

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1.6 EXAMINATION OF SITE AND DOCUMENTS

- A. A pre-bid conference will be held at the job site on the date and at the time indicated in the Invitation to Bid. This is the only opportunity for site inspection. An additional inspection time may be set up by the City.
- B. The bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which the work is to be carried out. The City of Waltham will not be responsible for errors, omissions, and/or charges for extra work arising from the Contractor's, Demolition Contractor's, or Subcontractors failure to familiarize themselves with the contract documents, that he is familiar with the conditions and requirements of both where they require, in any part of the work a given result to be produced, that the contract documents are adequate and he will produce the required results.

1.7 CONTRACT METHOD

- A. Work under this contract shall be lump sum price, for the scopes of work as described in these specifications. Each building shall be priced singularly; however, the award shall be based on the total project price.
- B. The Contractor with the approval of the City may modify the sequence of these activities. The Work will be conducted in the following project sequence and as described in Section 1.4; some overlap of activities may occur, subject to the requirements in these specifications:
 - 1. Mobilization;
 - 2. Removal and demolition of un-regulated materials;
 - 3. Asbestos and hazardous materials removal;
 - 4. PCB remediation;
 - 5. Building Demolition;
 - 6. Site work;
 - 7. Demobilization.
- C. The Contractor shall submit a construction schedule to the Designer for approval no later than ten (10) business days after issuance of Notice to Proceed.
- D. The City of Waltham reserves the right to request changes to the proposed sequence of work after review of the schedule and Work Plan.

1.8 SUPERVISION OF WORK

- A. The Contractor shall be held directly responsible for the correct installation of all work performed under this Contract. The Contractor must make good repair, without expense to the City of

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Waltham, of any part of the new work, or existing work to remain, which may become inoperative on account of leaving the work unprotected or unsupervised during construction of the system or which may break or give out in any manner by reason of poor workmanship, defective materials or any lack of space to allow for expansion and contraction of the work during the Contractor's warranty period, from the date of final acceptance of the work by the City of Waltham.

- B. The Contractor shall furnish a competent Massachusetts licensed superintendent satisfactory to the City of Waltham and to the Designer. The licensed superintendent shall supervise all work under this contract and who shall remain on duty at the site throughout the Contract period while work is in progress.
 - 1. Submit the name and resume of the superintendent for approval to the City of Waltham. Include experience with projects of equal size and complexity.

1.10 CONTRACTOR USE OF PREMISES

- A. Use of the Site: Limit use of the premises to work in areas indicated within the construction fence to be erected around the Site buildings by the Contractor. Coordinate work of all trades required within the construction fence boundary. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Allow for City of Waltham occupancy and use by the public (if applicable).
 - 2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the City of Waltham, their employees, and emergency vehicles at all times.
- B. Schedule and perform work to afford minimum of interruption to normal and continuous operation of utility systems. The Contractor shall submit to the City of Waltham and the Designer for approval, proposed schedule for performing work; including construction of new utilities, re-routing of existing utilities and final connection of new work to existing work. Schedule shall indicate shutdown time required for each operation.
- C. The Contractor shall notify the City of Waltham in writing, 72 hours in advance of the proposed time for shutting down or interrupting any utilities, services or facilities which may affect the operation of other buildings, services or facilities at the Site.
- D. Coordinate with City of Waltham and the Designer, work in connection with adjacent driveways, walks, or other facilities which would prevent access thereto or interrupt, restrict, or otherwise infringe upon the City of Waltham's use thereof.
- E. The Contractor shall be aware of the sensitivity of the neighborhood organizations to noise, dust, debris and site maintenance and take appropriate precautions to avoid conflict.
- F. Damage to existing work, if caused by the Contractor's operations under this Contract, shall be repaired at the Contractor's expense.
 - 1. An existing conditions survey shall be conducted, with the Designer, the City of Waltham

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representatives, at which existing conditions will be videotaped by the Contractor. A copy of the videotape will be provided to the City of Waltham.

- G. Trenching and other work outside construction limits shall be expedited to fullest extent and carried out with minimum of inconvenience to normal operation of traffic. Walks, paved or landscaped areas over which temporary driveways cross, shall upon completion of the work, be restored to their original condition. Temporary roadways shall be bridged over trenched areas.
- H. The Contractor can gain access to the premises during the hours specified below. In addition the Contractor and his personnel will limit themselves only within the working premises during working hours. If work needs to be scheduled during times other than those listed below, Contractor shall inform the City of Waltham one week prior to work.
 - 1. Deliveries: 7:00 am to 5:00 pm.
 - 2. General Access: 7:00 am to 5:00 pm.
- I. Confine operations at the site to areas permitted by:
 - 1. Laws
 - 2. Ordinances
 - 3. Permits
 - 4. Contract Documents
- J. Contractor shall supervise the use of the site related to construction and be responsible for correcting any damage identified by the City of Waltham to their satisfaction.
 - 1. An existing conditions survey shall be conducted, with the Designer and City of Waltham representatives, at which existing conditions will be videotaped by the Contractor. A copy of the videotape will be provided to the City of Waltham.
- K. All available existing utilities adjacent to the construction site will be available as described herein. Temporary connections to these utilities, all metering, transformers, removal, usage, and their associated costs will be the responsibility of the Contractor.

1.11 COORDINATION

- A. The Contractor shall be responsible for the proper fitting of all the work and for the coordination of the operations of all trades, Subcontractors or material and men engaged upon the work. The Contractor shall do, or cause his agents to do, all cutting, fitting, adjusting, and repair necessary in order to make the several parts of the work come together properly.
 - 1. Examine Contract Documents in advance of start of construction and identify in writing questions, irregularities or interference to the City of Waltham in writing. Failure to identify and address such issues in advance becomes the sole responsibility of the Contractor. A

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conflict that would cause the reduction of the normal ceiling height of any occupied space is considered to be an interference.

- B. The work sequence shall follow planning and schedule established by the Contractor as approved by the Designer and the City of Waltham. The work upon the site of the project shall commence promptly and be executed with full simultaneous progress. Work operations which require the interruption of utilities, service, and access shall be scheduled so as to involve minimum disruption and inconvenience, and to be expedited so as to insure minimum duration of any periods of disruption or inconvenience.
- C. The Contractor shall review the tolerances established in the specifications for each type of work and as established by trade organizations. The Contractor shall coordinate the various trades and resolve any conflicts that may exist between trade tolerances without additional cost to the City of Waltham. The Contractor shall provide any chipping, leveling, shoring or surveys to ensure that the various materials align as detailed by the Designer and as necessary for smooth transitions not noticeable in the finished work.

1.12 FIELD ENGINEERING

- A. Provide field engineering services; establish grades, lines and levels, by use of recognized engineering survey practices. All field engineering surveying shall be performed by a licensed Land Surveyor registered in the Commonwealth of Massachusetts.
- B. The Contractor shall survey and submit exact dimensional layouts as required. Engage and pay for the services of a Massachusetts Registered Surveyor acceptable to the City of Waltham to locate and protect control and reference points.

1.13 REFERENCE STANDARDS

- A. For products specified by association or trade standards, comply with requirements for the standard, except where more rigid requirements are specified or are required by codes. Refer to Section 014200 - REFERENCES.
- B. Where reference is made in the Contractual Documents to Publications and Standards issued by Associations or Societies, the intent shall be understood to specify the current edition of such Publications or Standards (including tentative revision) in effect on the date of the contract advertisement notwithstanding any reference to a particular date.

1.14 PRE-CONSTRUCTION CONFERENCE

- A. In accordance with Article V of the CONTRACT AND GENERAL CONDITIONS, a pre-construction conference to review the work will be conducted by the City of Waltham.
- B. Representatives of the following shall be required to attend this conference:
 - 1. Designer

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2. Contractor
3. All Subcontractors
4. Applicable Municipal Agencies

C. The Contractor shall have a responsible representative at the pre-construction conference to be called by the City of Waltham following the award of the contract, as well as representatives of field or office forces and major Trade contractors. All such representatives shall have authority to act for their respective firms. The pre-construction conference is to be held within five days of Notice to Proceed, or as otherwise determined by the City of Waltham.

1.15 PROJECT MEETINGS

- A. Project meetings shall be held on a weekly basis and as required subject to the discretion of the City of Waltham.
- B. As a prerequisite for monthly payments, ordering schedules, shop drawing submitted schedules, and coordination meeting schedules shall be prepared and maintained by the Contractor and shall be revised and updated on a monthly basis, and a copy shall be submitted to the City of Waltham and Designer.
- C. In order to expedite construction progress on this project, the Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress. The Contractor shall present a list and written proof of all materials and equipment ordered (through purchase orders). Such list shall be presented at the meetings and shall be continuously updated.
- D. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the Contractor, which shall reflect construction completion not being deferred or foreshortened. Identify critical long-lead items and other special scheduling requirements. The project schedule is to include time for submission of shop drawing submittals, time for review, and allowance for resubmittal and review.
- E. Project meetings shall be chaired by the Designer.
- F. Minutes of the project meetings shall be prepared by the Designer and shall be distributed to all present. The Designer's meeting minutes shall be the only official meeting record.

1.16 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

- A. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having any jurisdiction require any portion of the Work to be inspected, tested, or approved, the Contractor shall give the Designer, the City of Waltham or his/her designated representative, and such Authority timely notice (5 business days minimum) of its readiness so the Designer may

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observe such inspecting, testing, or approval.

- B. Prior to the start of construction, the Contractor shall complete application to the applicable Building Code enforcement authority for a Building Permit. Such Permit shall be displayed in a conspicuous location at the project site.
- C. Unless otherwise specified under the Sections of the Specifications, the Contractor shall pay such proper and legal fees to public officers and others as may be necessary for the due and faithful performance of the work and which may arise incidental to the fulfilling of this Contract. As such, all fees, charges, and assessments in connection with the above shall be paid by the Contractor.
- D. The Contractor shall maintain at the site, for the duration of construction operations, at least one (1) up-to-date copy of all relevant codes and standards listed in the Contract Documents or determined to be applicable to the work. One (1) copy of such codes shall be for the exclusive use of the City of Waltham and the Designer and its Consultants, and shall be kept in the Contractor's site office.
- E. The Contractor shall furnish and install all information required by the building official and shall secure the general building permit for the work promptly on award of the Contract. The Contractor shall conform to all conditions and requirements of the permit and code enforcement authority. The Contractor shall provide names and license numbers of its responsible representatives to complete the application for permit, and shall receive the permit and promptly distribute copies to the City of Waltham and the Designer.
- F. Contractor and specialized Subcontractors as applicable shall identify all permits (other than general building permit) required from Authorities having jurisdiction over the Project for the construction and occupancy of the work. The Contractor shall prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner, and shall furnish the required information to the Building Official and obtain the required permits as early as practicable after award of the Contract.
 - 1. The Contractor shall display all permit cards as required by the Authorities, and shall deliver legible photocopies of all permits to the City of Waltham and the Designer promptly upon their receipt.
 - 2. The Contractor shall arrange for all inspections, testing and approvals required for all permits, and shall notify the Designer and the City of Waltham of such inspections at least three (3) business days in advance (longer if so required in the various Sections of the Specifications), so they may arrange to observe.
 - 3. The Contractor shall comply with all conditions and provide all notices required by all permits.
 - 4. The Contractor shall perform and/or arrange for and pay all testing and inspections required by the Governing Codes and Authorities, other than those provided by the City of Waltham, and shall notify the Designer and City of Waltham of such inspections at least three (3) business days in advance of all such testing or inspection, so they may arrange to observe. Fees are waived for all City required permits.

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5. Where Inspecting Authorities require corrective work for conformance with applicable Codes and Authorities, the Contractor shall promptly comply with such requirements, except in cases where such requirements clearly exceed the requirements of the Contract Documents, in which case the Contractor shall proceed in accordance with the procedures for modifications or changes in the work established in the Contract Documents, as amended.

1.17 CUTTING, CORING, AND PATCHING, UNLESS OTHERWISE INDICATED

- A. The **Contractor shall coordinate all cutting, coring, fitting and patching of the work** that may be required to make its several parts come together properly and fit it to receive or be received by work of the Subcontractors shown on the Drawings and Specifications. **The Subcontractor shall perform all cutting, coring or patching.**
- B. The Contractor shall coordinate that the work of the subcontractor is not endangered by any cutting, coring, excavating, or otherwise altering of the work and shall not allow the cutting or altering the work of any Subcontractor except with the written consent of the Designer.
- C. Submit a written request to Designer well in advance of executing any cutting or alteration which affects:
 1. Work of City of Waltham or a separate Contractor.
 2. Structural value or integrity of any element of the Project.
 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance, or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
 6. Request shall include:
 - a. Identification of the Project.
 - b. Description of affected work.
 - c. The necessity for cutting, alteration, or excavation.
 - d. Effect on work of the City of Waltham or any separate Contractor, or on structural or weatherproof integrity of Project.
 - e. Description of proposed work:
 - f. Alternatives to cutting and patching.
 - g. Cost proposal, when applicable.
 - h. Written permission of any separate Contractor whose work will be affected.
 7. Should conditions of Work or the schedule indicate a change of products from original installation, Contractor shall submit request for substitution.
 8. Submit written notice to Designer designating date and time the work will be uncovered a minimum of three business days in advance.

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D. Performance:

1. Execute cutting and patching by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
 - a. In general, where mechanical cutting is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
 - b. Comply with the requirements of Section 310000 - SITEWORK where cutting-and-patching requires excavating and backfilling.
 - c. Prior to cutting and structural steel or concrete work, contact Designer and Project Structural Engineer in writing. Do not cut any structural steel and concrete work until approval has been granted by the Designer and the City of Waltham.
2. Employ original installer or fabricator to perform cutting and patching for:
 - a. Weather-exposed or moisture-resistant elements.
 - b. Sight-exposed finished surfaces.
3. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
4. Restore work which has been cut or removed; install new products matching existing to provide completed Work in accordance with requirements of Contract Documents.
5. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
6. Patch with seams which are durable and as invisible as possible. Flash and seal all penetration of exterior work. Comply with specified tolerances for the work.
7. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.
 - a. Where patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch.
8. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - a. For continuous surfaces, refinish to nearest intersection.
 - b. For an assembly, refinish entire unit.

1.18 UTILITIES

A. Existing Utilities Services:

1. Interruptions to critical existing utility services will not be allowed.
 - a. All relocation of existing electrical, telephone, and gas services that are utility company owned shall be performed by the respective utility company, and the cost of any charges for such work shall be paid by the Contractor. All utility installations and relocation shall be the responsibility of the Contractor. Coordination of all of the aforesaid work is the responsibility of the Contractor in cooperation with the Contractor.

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2. The Contractor, in cooperation with the City of Waltham shall locate and record on Drawings all existing utilities along the course of the work by such means as the Designer and the City of Waltham may approve, and shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed and protected as required. It shall be the Contractor's responsibility, to notify the proper authorities and/or utility company before interfering therewith.
3. Existing utilities that are indicated on available review drawings or whose locations are made known to the Contractor and Contractor prior to excavations, though accuracy and information as to grades and elevations may be lacking, shall be protected from damage during the excavation and backfilling operations and, if damaged by the Contractor, it shall be repaired by the Contractor at his/her own expense.
4. All exposed conduits, wires, and/or cables shall be provided with sufficient protection and support to prevent failure, fraying, or damage due to backfilling or other construction operations.
5. The Contractor shall not obstruct access to existing active utility system manholes and catch basins which continue to serve facilities other than the project construction site. The Contractor shall exercise measures as necessary to prevent the placement of impediments that limit continuous access by authorized utility company or City of Waltham maintenance personnel and shall be required to reimburse the utility company or City of Waltham for any expense incurred as a result of need to remove any such impediments to access.

B. Dig-Safe:

1. Within the Commonwealth, "Dig-Safe" (Dig Safe Systems, Inc.) is the name of the Utility Underground Plant Damage Prevention Authority. They are located at 331 Montvale Avenue; Woburn, MA 01801. The telephone number is 1-888-DIGSAFE (344-7233). Contractors must notify "Dig-Safe" of contemplated excavation, demolition, or explosive work in public or private ways, and any utility company right-of-way easement. Notification must be made at least seventy-two (72) hours prior to the work, but not more than sixty (60) days before the contemplated work.
2. "Dig-Safe" is required to respond to the notice within seventy-two (72) hours from the time said notice is received by designating at the locus the location of pipes, mains, wires, or conduits.
3. Contractors shall not commence with work until "Dig-Safe" has responded as noted above.
4. Prior to the "Dig-Safe" notification, the City of Waltham requires Contractors to provide their Superintendent with current "Dig-Safe" regulations, and a copy of Massachusetts General Laws, Chapter 82, Section 40.

1.19 DEBRIS REMOVAL

- A. **The Contractor shall coordinate the removal of all demolition and construction waste from**

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the job site on a daily basis. Waste shall be segregated for recycling. Comply with requirements of Section 017418 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

- B. Debris shall be legally disposed of in a D.E.P. approved disposal site. The site to be used shall be submitted to and approved by the City of Waltham and the Designer prior to the start of construction. All required dumping permits shall be obtained prior to start of construction. Contractor shall submit receipts from the disposal site(s) as evidence of legal disposal. The Contractor shall pay the cost of any charges for debris removal.
- B. The Contractor shall bear responsibility for maintaining the building and site clean and free of debris, leaving all work in clean and proper condition satisfactory to the City of Waltham and the Designer. The Contractor shall ensure that each of the Subcontractors clean up during and immediately upon completion of their work. Clean up includes the following tasks:
 - 1. Remove all rubbish, waste, tools, equipment, appurtenances caused by and used in the execution of work.
- C. Prevent the accumulation of debris at the construction site, storage areas, parking areas, and along access roads and haul routes.
- D. Provide containers for deposit of debris and schedule periodic collection and disposal of debris.
- E. Prohibit overloading of trucks to prevent spillage on access and haul routes.
- F. The Contractor shall be responsible for proper disposal of all construction debris leaving the site.

1.20 FIELD MEASUREMENTS

- A. Although care has been taken to ensure their accuracy, the dimensions shown for existing items and structures are not guaranteed. It is the responsibility of the Contractor to verify these dimensions in the field before fabricating any construction component. No claims for extra payment due to incorrect dimensions will be considered by the Commonwealth.

1.21 SAFETY REGULATIONS

- A. This project is subject to compliance with Public Law 91-596 "Occupational Safety and Health Act" - latest edition (OSHA 29 CFR 1926), 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. Submit the name of the Contractor's safety officer to the City of Waltham. Submit copies of safety reports to the City of Waltham monthly.
- C. All accident reports are to be transmitted to the City of Waltham within 24 hours of occurrence.

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1.22 OSHA SAFETY AND HEALTH COURSE DOCUMENTATION

- A. OSHA Safety and Health Course Documentation Records: Chapter 306 of the Massachusetts Acts of 2004 requires that everyone employed at the jobsite must complete a minimum 10-hour long course in construction safety and health approved by the U.S. Occupational Safety and Health Administration (OSHA) prior to working at the jobsite. Compliance is required of Contractors' and Subcontractors' on-site employees at all levels whether stationed in the trailer or working in the field. Unless the Massachusetts Attorney General's office indicates otherwise, this requirement does not apply to home-office employees visiting the site or to suppliers' employees who are making deliveries.
- B. Documentation records shall be initially compiled by the Contractor and Subcontractors as part of their certified payrolls, and the Contractor shall create and maintain a copy of the documentation on site at all times. On-site documentation shall be filed in alphabetical order and immediately available to the City of Waltham and OSHA inspectors. Fines imposed for non-compliance shall be promptly paid by the Contractor at no additional expense to the City of Waltham. Delays in the progress of the Work caused by such non-compliance will not be acceptable as the basis for an extension of contract time or change order request.

1.23 DAMAGE RESPONSIBILITY

- A. The Contractor shall repair, at no cost to the City of Waltham, any damage to building elements, site appurtenances, landscaping, utilities, etc. caused during demolition operation and work of this Contract.

1.24 ASBESTOS AND HAZARDOUS MATERIALS DISCOVERY

- A. If unanticipated asbestos-containing materials or other Hazardous Materials not included in Contract are discovered at any time during the course of work, the Contractor shall cease work in the affected areas only and continue work in other areas, at the same time notify the City of Waltham and the Designer of such discovery. Do not proceed with work in such affected areas until written instructions are received. If removal is required, payment will be made in accordance with the contract unit prices bid for each respective material. In the absence of unit prices, costs shall be negotiated or otherwise established prior to commencement of removal, in accordance with provisions of the Contract.

1.25 SPECIAL REQUIREMENTS

- A. The Contractor shall prepare a Health and Safety Plan that addresses protection of employee and public health and safety. The minimum contents of the Plan are specified in Section 028100 – MANAGEMENT AND DISPOSAL OF WASTE STREAMS.
- B. The Contractor shall be solely responsible for implementing the procedures specified in the Plan.
- C. The Contractor shall make available complete sets of personal protective equipment and clothing to the City of Waltham for use during site observations/inspections by the City of Waltham and

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the Designer. These shall be supplied and maintained at no cost to the City of Waltham and the Designer, and shall be returned to the Contractor upon the completion of work, except for disposable protective clothing.

1. The Contractor shall provide a repository for collection and disposal of health and safety materials. Collection and disposal of contaminated disposable supplies shall be at no additional cost.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

DIVISION 2

SECTION 023000

SUMMARY OF EXISTING CONDITIONS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SECTION INCLUDES

- A. Summary of Existing Conditions.

1.3 SUMMARY

- A. Each Bidder should visit the site of the proposed Work to fully acquaint him/herself with the existing conditions of the work to be performed and shall inform him/herself as to the facilities involved, the difficulties, and the restrictions attending the performance of the Contract. The Bidder shall thoroughly familiarize him/herself with the Contract including all Attachments attached to these Specifications. Bidders should visit the site and inspect the buildings and building construction materials. Bidders shall be thoroughly familiar with all existing buildings and site conditions under which work will be executed. Neither the City of Waltham nor the Designer shall be responsible for errors, omissions, and/or changes for extra work arising from the Contractor's failure to familiarize themselves with Contract documents and existing conditions.
- B. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the Site, the character of equipment and facilities needed prior to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work.
- C. There are no as-built building and site drawings available for review as part of the bid process. Asbestos and hazardous materials survey reports are available for review at

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Waltham City Hall. The bidder shall make arrangements directly with the City of Waltham to view these documents.

- D. Interior and exterior investigations of the building component composition have been performed including identifying and inventorying asbestos-containing material, mercury containing materials, petroleum products, containerized wastes, and refrigerants. The Contractor is responsible for identification and removal of all regulated materials and wastes. All containerized wastes and building systems fluids may not be broken out in the inventory. Field verification is required for all containerized wastes and building systems fluids. The Contractor is responsible for removal and proper disposal of all containerized wastes, building systems fluids present within the buildings.
- A. The Contractor and all Subcontractors shall be advised that testing has been conducted of representative painted/coated materials existing at the Site and these materials may contain low concentrations lead. Paints/coatings containing lead concentrations of greater than 0.5 percent by weight or 1.0 mg/cm², are considered “lead based paints by US EPA. “Lead-based paint” was identified within the Shriver and CERC buildings on the metal ladder in the 4th floor mechanical room to the left of the rear elevator, on the vinyl baseboards along the staircase treads and risers, and on the basement boiler. The Contractor shall at all times be in compliance with OSHA regulation 29 CFR 1926.62 Lead in Construction: Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents. Removal of lead paint may be required prior to cutting of PCB impacted portions of steel beams and structural members.
- B. Interior and exterior investigations of building component composition have been performed for polychlorinated biphenyl (PCBs). Copies of reports and certified analytical data sheets will be made available for review by Bidders upon request. The quantities listed herein represent estimates only and are not guaranteed. It is the responsibility of the Bidders to review and confirm all field conditions, including: locations, substrate materials and conditions. Neither the City of Waltham nor the Designer will be responsible for errors or omissions and/or charges for extra work arising from any bidder’s failure to become familiar with the existing conditions of the Site. No claims for extra payment due to incorrect quantities will be considered. By submitting a bid, a Bidder agrees and warrants that he is familiar with the existing site conditions, requirements of the work and the results to be produced. By submitting a bid, the bidder further agrees that the descriptions contained herein (i.e., quantities, descriptions, locations, areas, thicknesses, etc.) are adequate and that the Bidder will produce the required results.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 024000

BUILDING AND ANCILLARY STRUCTURES DEMOLITION

PART 1 GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.
- B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article III, Paragraph 1 of the CONTRACT AND GENERAL CONDITIONS.

1.2 DESCRIPTION OF WORK

- A. The CONTRACTOR shall provide labor, materials and equipment to complete the work of this Section and as shown on the Drawings. Generally, the demolition work shall include, but not be limited to:
 - 1. 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.
 - 2. The Contractor shall retain a Professional Engineer, registered in Massachusetts, to analyze the existing structures and determine:
 - a. The capacities of existing floors if the Contractor is going to operate equipment or store debris on these areas.
 - b. What equipment can be safely driven or placed on existing structures considering what is around the equipment when it is lifting its load.
 - c. Where equipment can be safely driven or placed on existing structures.
 - d. The limits for stockpiling of debris on existing structures.
 - e. Whether the structures have adequate strength to support demolition activities.
 - 3. The Contractor shall control access to areas that do not have the strength to support construction activities or where the strength has not been determined or verified by the Designer or by the Contractor's structural engineer.
 - 4. Demolition and removal of all designated buildings and structures including all contents, equipment, and systems within the buildings unless otherwise noted.

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5. Demolition and removal of all foundation walls, floor slabs, beams, girders, spandrels, columns, structural walls, partition walls, and footings.
 6. Installation of temporary shoring and lateral bracing (if necessary) for stability during demolition and its removal once it is no longer necessary.
 7. Removal of all under-slab utilities.
 8. Cutting capping steam lines, wet-wrapping exposed ends of asbestos-containing piping, and sealing steam tunnels for abatement by others at a later date.
 9. Segregating uncoated asphalt, brick and concrete (ABC) from other debris that is designated as PCB Bulk Product Waste and other waste streams.
 10. Removal and legal disposal of demolished materials off site at the Contractor's expense. All existing removed materials, items, trash, and debris shall become the property of the Contractor and shall be completely removed from the site and legally disposed, recycled, or salvaged at his/her expense. On-site sale of material is not permitted.
 11. If work is performed in winter months, the CONTRACTOR shall be responsible for snow removal to access the Site and perform all work described herein.
 12. Protection of asphalt paving surrounding the buildings that are designated to remain.
 13. Scheduling and sequencing operations without interrupting utilities serving occupied areas in other buildings. If interruption is required, obtain written permission from the utility company and the City of Waltham. Provide temporary services as necessary to serve occupied and usable facilities when permanent utilities must be interrupted, or schedule interruption when the least amount of inconvenience will result.
- B. Related work: The following items are closely related to the demolition work but not included in this Section and will be performed under the designated Sections.
1. Section 015000 – TEMPORARY FACILITIES AND CONTROLS
 2. Section 017700 - CONTRACT CLOSEOUT
 3. Section 025000 - ASBESTOS REMOVAL AND RELATED WORK
 4. Section 025110 - CONCRETE AND MASONRY DEMOLITION
 5. Section 028100 MANAGEMENT AND DISPOSAL OF WASTE STREAMS
 6. Section 028433 –PCB CAULK REMOVAL
 7. Section 310000 – EARTHWORK
 8. Section 311000 – SITE CLEARING

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1.3 SCHEDULE

- A. The Contractor shall perform work in accordance with the schedule prepared by the City of Waltham.

1.4 REFERENCES

- A. 310 CMR 19.060 (Solid Waste Regulations – Beneficial Use Determination)
- B. 40 CFR 761 (POLYCHLORINATED BIPHENYLS (PCBs) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS)

1.5 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the City of Waltham's property.
- B. Dismantle: Controlled demolition procedure where segments of structure are temporarily shored, sawcut, and removed using a crane.

1.6 MATERIALS OWNERSHIP

- A. Demolished materials shall become the Contractor's property and shall be removed from the site and all recyclable demolition material shall be recycled and non-recyclable material shall be disposed at approved legal landfills.

1.7 SUBMITTALS

- A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300 - SUBMITTAL REQUIREMENTS.
- B. Quality Control Submittals (prior to commencement of on-site demolition):
 - 1. Project Scheduling requirements in accordance with Section 013200.
 - 2. Demolition Plan that specifies the approach and sequence of the demolition of the entire structure to be removed along with a list of equipment that will be used for the demolition. The demolition plan shall specifically address the demolition of portions of the structure that require dismantling as indicated herein, the need for temporary lateral bracing during demolition (if required), locations requiring shoring (if required), list and operating weights of equipment to be operated on the floors and restrictions as to where they may be operated, locations and limitations of stockpiling debris on concrete slab floors, methodology for removing PCB Bulk Product Waste from the buildings, and management of waste streams, including

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segregation and handling of PCB Bulk Product Waste, asbestos-containing materials, and other hazardous and non-hazardous materials.

3. Waste Management Plan to indicate the types of wastes to be generated and the proposed disposal or recycling locations. Include back-up disposal facilities.
 4. Copies of any authorizations and permits required to perform the work, including disposal/recycling facility permits.
 5. Dust Control Plan to indicate the methods the Contractor will use to limit spreading of fugitive dust to neighboring private residences.
 6. Noise Abatement Program to indicate the methods the Contractor will use to keep noise to a minimum. Refer to Section 013543 – ENVIRONMENTAL PROTECTION PROCEDURES for more information.
 7. The qualifications of the Massachusetts Registered Professional Engineer analyzing the existing structures.
 8. Schedule of Demolition Activities. Indicate the following:
 - a. Detailed sequence of demolition and removal work, with early and late starting and finishing dates for each activity. Ensure on-site operations are uninterrupted.
 - b. Interruption of utility services. Indicate how long utility services will be interrupted.
 - c. Coordination for shutoff, capping, and continuation of utility services.
 9. Locations of proposed dust- and noise-control temporary partitions and means of egress.
- C. Contract Closeout Submittals (throughout project and prior to authorization of final payment):
1. Records of the amounts of waste generated, by waste type.
 2. Evidence of lawful disposal or recycling of all wastes generated.
 3. Documentation of underground structures and utilities to remain within the Limit of Work.
- D. Inventory: After demolition is complete, submit a list of items that have been removed and salvaged.
- E. Landfill Records: Provide trip tickets (receipts) indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

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1. Comply with submittal requirements in Section 017418 – DEMOLITION WASTE MANAGEMENT AND DISPOSAL.

1.8 REGULATORY REQUIREMENTS

- A. The Contractor is solely responsible for obtaining permits or approvals which may be required to perform the work of this section and related sections, including all costs, fees and taxes required or levied. Notify and obtain such permits or approvals from all agencies having jurisdiction over demolition prior to starting work including, but not limited to Fire Departments of the City of Waltham and all other local, state and federal agencies.
- B. Obtain demolition permits from the Department of Public Safety (DPS) for the project. DPS requires (780 CMR 116.1) that the Contractor provide a letter from each impacted utility verifying termination of service prior to issuance of the demolition permit.
- C. Comply with all applicable federal, state, and local safety and health requirements regarding the demolition of structures and other site features as applicable including but not limited to 780 CMR Section 3307.0 “Protection of Adjoining Property.”
- D. Conform to procedures identified in Section 026000 MISCELLANEOUS HAZARDOUS MATERIAL REMOVAL when discovering hazardous or contaminated materials.
- E. Conform with the City of Waltham noise ordinance.

1.9 QUALITY ASSURANCE

- A. Examination of Existing Conditions: The Contractor shall examine the Specifications and other contract documents for demolition and removal requirements and provisions for new work. Verify all existing conditions and dimensions before commencing work. The Contractor shall visit the site and examine the existing conditions as he finds them and shall inform herself/himself of the character, extent and type of demolition and removal work to be performed. Submit any questions regarding the extent and character of the demolition and removal work in the manner and within the time period established for receipt of such questions during the bidding period.
- B. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- C. Massachusetts Registered Professional Engineer Qualifications for Engineer retained by the Contractor to analyze the existing structure: The Registered Professional Engineer shall have at least five (5) years’ experience and three (3) projects in performing demolition support of projects similar to this project, including work in urban areas.
- D. Massachusetts Registered Professional Engineer Qualifications: The Registered Professional Engineer shall have at least five (5) years’ experience and three (3) projects in performing pre- and post-construction surveys of projects similar to this project, including work in urban areas, and a record of performance in completing condition surveys of similar types of

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structures and buildings. The Professional Engineer shall have structural and demolition expertise.

- E. Regulatory Requirements: Comply with governing USEPA and MassDEP notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- F. Standards: Comply with ANSI A10.6 "Safety Requirements for Demolition Operations" and NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations."
- G. Pre-demolition Conference: Conduct conference at the Site. Review methods and procedures related to demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of buildings to be demolished.
 - 2. Review structural load limitations of existing structures. The Contractor shall present their structural engineer's assessment of what equipment can be safely driven, operated, or placed on the existing structure; where the equipment can be safely driven, operated, or placed on the existing structure; how floor areas that cannot support the demolition equipment shall be identified and access to them shall be restricted, and limits for stockpiling of debris on the existing structure.
 - 3. Review and finalize demolition schedule, Demolition Plan, and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review Dust Control Plan
 - 5. Review Noise Abatement Program
 - 6. Review the Self-Implementing Work Plan submitted to EPA, as well as, Addenda, EPA comments, approvals, conditions, and demolition procedures that are to be used to comply with the Plan.

1.10 LEAD-BASED PAINT

- A. Lead-containing paint may be present on components located throughout the buildings to be demolished. However, lead abatement of these components shall not be required for performance of the demolition work outlined therein.
- B. Removal of lead paint will be performed at the Contractor's own expense in accordance with applicable OSHA requirements. No additional compensation shall be granted for any engineering control methods employed by the Contractor for compliance with this Section, OSHA or other applicable requirements.
- C. The CONTRACTOR shall be advised that testing has been conducted of representative painted/coated materials existing at the Site and these materials may contain lead. The CONTRACTOR and all subcontractor shall at all times be in compliance with OSHA

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regulation 29 CFR1926.62 Lead in Construction: Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents.

PART 2 – PRODUCTS

2.1 **GENERAL**

- A. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with the operation of others at the Site or with employees' access and safety. The storage area(s) shall be proposed by the Contractor and approved by the Designer.
- B. All materials shall be delivered to the Site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description. No damaged or deteriorating materials shall be used.
- C. Damaged or deteriorated materials shall not be used and shall be promptly removed from the Site.
- D. All materials and equipment shall comply, at a minimum, with all sections of these specifications, applicable federal and state regulations and policies.

2.2 **MATERIALS**

- A. Waste containers shall be suitable for loading, temporary storage, transport and unloading of selected demolition waste without risk of release to the Site and environment. Waste containers shall be suitable for transportation in conformance with all applicable Federal and State required laws, regulations, and policies.

2.3 **SAFETY SUPPLIES AND EQUIPMENT**

- A. All workers shall be provided with suitable personal protection equipment as specified in the Contractor's Health and Safety Plan. This equipment shall include disposal coveralls, head protection, foot coverings, gloves, and eye protection. Minimum respiratory protection shall be compliant with current OSHA regulations.
- B. Air monitoring equipment of the type and quantity required to monitor operations and conduct personnel exposure surveillance in accordance with OSHA requirements.

PART 3 - EXECUTION

3.1 GENERAL

- A. Verify site conditions before proceeding with demolition work. Field-check and inspect structures and utilities prior to start of work and notify the Designer in writing of any hazardous conditions and/or discrepancies. Refer to Section 311000 – SITE CLEARING for additional requirements.
 - 1. Unknown Site Conditions - The information provided in the Specifications is believed accurate, but the Contractor should field verify all information. The Contractor shall bear full responsibility for obtaining all locations of underground structures (utilizing the services of a utility locating subcontractor), utilities and their connections. Services to buildings outside the Limits of Work shall be maintained and all resulting costs or charges due to interruption of these utilities shall be the responsibility of the Contractor.
 - 2. Interior Elements - Interior features including but not necessarily limited to structural elements, walls, partitions, equipment, piping, finishes, and other building facilities must be visually inspected prior to submittal of bid, and again prior to initiation of on-site work. The Contractor shall be responsible for performing its own inspection and appraisal of all features and facilities to be demolished or removed for salvage. The Contractor shall also investigate to assure itself of the condition of the work to be demolished and shall take all precautions necessary to ensure safety of people and property.
- B. The demolition of the buildings, underground utilities and related appurtenances shall be accomplished by methods which will not cause damage to surrounding structures, underground and overhead utilities, or other existing items and structures that are to remain in place. In the event that damage occurs to surrounding structures, utilities, or any other items, the contractor shall promptly repair the damage at his own expense. All debris shall be promptly and properly managed as the demolition progresses. Construct and/or prepare material Staging/Stockpile areas as required at locations approved by the Designer and the City of Waltham.

3.2 WORK RESTRICTIONS

- A. The use of burning is not permitted.
- B. The use of explosives is not permitted.
- C. The contractor shall not “pancake” the floors as part of the demolition. That is, the Contractor shall not take down portions of the building by allowing upper floors to fall on lower floors in a manner that causes lower floors to collapse.
- D. Do not crush or pulverize demolished PCB Bulk Product Waste concrete and masonry

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materials on site. Do not separate steel reinforcement from concrete and masonry members on site. Divide concrete members only to the largest size that is practical for loading onto trucks for removal from the site. PCB Bulk Product Waste masonry and concrete must be removed and disposed as required in Section 025110.

- E. Refer to Section 011000 – SUMMARY.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities. Damage or impact to any public or private property including sidewalks, roadways, landscape areas, or buildings/structures will be immediately repaired at no cost to the City of Waltham.
 - 1. Comply with requirements for access and protection specified in Section 015000 - TEMPORARY FACILITIES AND CONTROLS.
 - 2. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City of Waltham. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 3. Protect existing site improvements and appurtenances to remain.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.
 - 1. Erect temporary protection, such as walks, fences, and barriers. Provide temporary barricades as required to limit access to demolition areas. Refer to Section 015000 - TEMPORARY FACILITIES AND CONTROLS for additional requirements for fencing and temporary barricades.
- C. Install OSHA compliant guardrails at all applicable areas.
- D. Drain, purge, or otherwise remove, collect, and legally dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.
- E. Pre-clean buildings of miscellaneous solid waste in preparation for asbestos abatement, PCB remediation, and hazardous materials removal.
- F. Demolition activities in the building shall not be initiated until the requirements of Section 311000 – SITE CLEARING, Section 025000 - ASBESTOS REMOVAL and RELATED WORK, Section 028433 – REMOVAL OF PCB CONTAINING CAULK MATERIALS, and Section 026000 - MISCELLANEOUS HAZARDOUS MATERIAL REMOVAL have been satisfied.
- G. Utilities:
 - 1. Notify Dig Safe to request a utility mark-out for the Site prior to performing any

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demolition work. Retain a private utility marking contractor to locate and mark all utilities at the buildings to be demolished.

2. Terminate utilities serving the buildings prior to commencing demolition. Refer to Section 311000 — SITE CLEARING for additional requirements.

H. Wildlife Control

1. The CONTRACTOR shall implement the requirements of Section 015716 – TEMPORARY PEST CONTROL prior to starting demolition activities.
2. Remove from structures all rodents and other animals prior to demolition.
3. Removal methods shall prevent infestation of adjoining properties.

3.4 HAZARDOUS MATERIALS

A. Hazardous Materials

1. Prior to demolition, remove asbestos-containing materials, oil, and other hazardous materials in accordance with Section 013543, Section 025000, Section 025110, Section 026000, and Section 028433.

B. Biological

1. The Contractor is hereby notified that there are localized occurrences of mold, mildew and bird guano on the structures to be demolished. Inhalation of these materials could present a hazard to workers.
2. The Contractor shall perform abatement, debris removal, and demolition activities in a manner that prevents workers exposure to airborne pathogens and biological matter.
3. The Contractor is responsible for the lawful collection, characterization and disposal of all biological substances on surfaces in accordance with USEPA and MassDEP Regulations.

C. Lead Paint

1. A number of state, federal and local agencies regulate work that involves lead paint. The Contractor is hereby notified that there are paint coatings on the structures to be demolished that contain lead. This lead could present a hazard to workers and requires regulatory compliance with 29 CFR 1926.62 “Lead in Construction.”
2. Of specific concern is the cutting of steel components using torch methods. If the Contractor intends to torch-cut painted steel, lead paint must be removed from the area to be cut with a chemical stripper or other means prior to cutting. Sufficient paint must be removed from the area to prevent volatilization of lead during the heating of the steel. Other methods of controlling worker exposure to lead will be

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acceptable provided that they are addressed in the Contractor's "Lead Exposure Plan" and that they meet the requirements of 29 CFR 1926.62.

3. The Contractor is responsible for the lawful collection, characterization and disposal of all paint chip debris and flaking paint on surfaces in accordance with USEPA and MassDEP Regulations.
4. Where activities may generate leaded dust or impact a leaded surface, regulate work area so that dust migration is contained properly within the regulated area. Once the work is complete, properly clean up and dispose of leaded dust and materials.

D. Oil and Hazardous Material Contamination

1. Contaminated soil may be encountered during foundation excavation or at other areas of the site. In the event that contaminated soil is encountered, handle such material in accordance with State and Federal Regulations.
2. The Contractor working in areas of the Site where contamination may be encountered shall be appropriately trained, as required in the Contractor's Health and Safety Plan.
3. When working in areas of the site where contamination is likely to be encountered, the Contractor's Site Safety Officer shall monitor the work area in accordance with the Contractor's Health and Safety Plan.

3.5 UNANTICIPATED ASBESTOS AND HAZARDOUS MATERIALS DISCOVERY

- A. If unanticipated asbestos-containing materials or other Hazardous Materials not included in Contract are discovered at any time during the course of work, the Contractor shall cease work in the affected areas only and continue work in other areas, and at the same time notify the City of Waltham and the Designer of such discovery. Do not proceed with work in such affected areas until written instructions are received. If removal is required, payment will be made in accordance with the contract unit prices bid for each respective material. In the absence of unit prices, costs shall be negotiated or otherwise established prior to commencement of removal, in accordance with provisions of the Contract.

3.6 DEMOLITION

A. General Requirements

1. Shut down and lock out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
2. Coordinate all power and fire alarm isolation with the appropriate representatives.
3. When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables,

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in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.

4. Conduct demolition operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
5. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by the Designer, OSHA or other authorities having jurisdiction.
6. Protect existing site improvements and appurtenances to remain.
7. Strengthen or add new supports when required during progress of demolition.
8. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
9. Maintain adequate ventilation when using cutting torches. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
10. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
11. Locate demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
12. Dispose of demolished items and materials promptly. Comply with requirements in Section 017418 - DEMOLITION WASTE MANAGEMENT AND DISPOSAL and Section 028100 – MANAGEMENT AND DISPOSAL OF WASTE STREAMS.
13. The demolition of the columns, beams, and portions of floor/ceiling slabs that are classified as PCB Bulk Product Waste shall use methods that reduce the impact on the PCB Bulk Product Waste sites as much as feasible and insures the minimum amount of dust generation. The details of the means and methods shall be included as a separate section within the Demolition Plan prepared in accordance with applicable sections of these Specifications.
14. Intentional collapse or explosive demolition practices are strictly forbidden on this project.
15. Ladders and/or scaffolds to be utilized throughout this project shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

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16. Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

B. Selective Demolition

1. See Section 024200 – SELECTIVE DEMOLITION

C. Structure Demolition

1. After completion of selective demolition, demolish and completely remove the existing building and structures within the Limit of Work unless otherwise noted on the Drawings. Structure demolition shall include the demolition of all structural and remaining non-structural building elements, including mechanical systems, equipment, other items within the building, all underslab utilities, and appurtenances and ancillary components within, and fixed to, the building. All remaining equipment and other items within the building shall be demolished as required and removed for reuse, recycling, or lawful disposal.
2. All building foundation components and related elements including floor slabs shall be completely removed unless otherwise noted on the Drawings.
3. Ensure no unstable building elements are left unsupported. Place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this Contract. During demolition, the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, or other structural element shall be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.
4. Material Segregation
5. See Section 028100 – MANAGEMENT AND DISPOSAL OF WASTE STREAMS for material segregation requirements.

E. Concrete and Masonry

1. Rubble shall not be used as backfill on the site.
2. For additional requirements, See Section 3.2.

F. Miscellaneous Site Demolition

1. Remove and properly dispose of all miscellaneous debris, miscellaneous solid waste, garbage, abandoned supplies, brush, stumps, equipment, or other materials located within the Limit of Work, including the interior of the buildings to be demolished.

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3.7 DISPOSAL

- A. See Section 028100 – MANAGEMENT AND DISPOSAL OF WASTE STREAMS for disposal requirements.

3.8 BACKFILLING

- A. Backfill Material and Compaction:
 - 1. Conform to Section 310000 EARTHWORK.

3.9 DOCUMENTATION

- A. Document the project as required under Section 310000 EARTHWORK.

3.10 DUST CONTROL

- A. The Contractor shall implement fugitive dust suppression to prevent unacceptable levels of dust resulting from demolition operations or other activities required by the Contract. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to visually monitor airborne particulate matter. Comply with applicable provisions of Section 013543 - ENVIRONMENTAL PROTECTION PROCEDURES and Section 015000 - TEMPORARY FACILITIES AND CONTROLS.
- B. Refer to Section 015000 for requirements related to the source of water for dust control.

3.11 NOISE AND VIBRATION CONTROL

- A. Refer to Section 013543 – ENVIRONMENTAL PROTECTION PROCEDURES for more information.

3.12 PROTECTION

- A. Protect site features, vegetation and adjacent property as indicated in Section 311000 SITE CLEARING
- B. Protect grass and trees that are not in the immediate vicinity of structures, roads or utilities to be demolished. Only remove those grasses, trees, shrubs and other vegetation necessary to complete the work. The Contractor is responsible for proper disposal of all trees and other vegetation removed.

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3.13 CLEANUP

- A. Remove all debris, residuals, and materials at the conclusion of demolition activities.
- B. Additional requirements are specified in Section 017700 — CONTRACT CLOSEOUT.

END OF SECTION

SECTION 024200

SELECTIVE DEMOLITION

PART 1- GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION I – GENERAL REQUIREMENTS, which are hereby made a part of this Section of Specifications.

1.2 DESCRIPTION OF WORK

- A. The CONTRACTOR shall provide all labor, materials, tools, equipment, services and incidentals which are necessary or required to perform the work of this section in accordance with all applicable governmental regulations, industry standards and codes and these Specifications. The work of this Section, includes, but is not limited to the following:
1. Selective demolition, decontamination, and on-site management and storage of selected components of the buildings.
 2. The items to be selectively removed are shown include:
 - Expansion joints;
 - Remaining plaster ceilings, soffits, associated lathe, brackets, and ties;
 - Ceramic wall tiles;
 - Ceramic floor tiles;
 - Interior gypsum partition walls, studs, acoustical ceilings, doors, frames, and fixtures;
 - Piping, fiberglass insulation;
 - HVAC ductwork;
 - Roofing and associated flashing, curbing, penetrations, insulation, (multiple layers of roofing) down to the concrete roof deck;
 - Vinyl/rubber flooring and adhesives;
 - Electrical wiring, conduit, and ancillary equipment;
 - Plaster and lathe;
 - Plywood and wood debris;
 - Cardboard boxes and miscellaneous rubbish and debris;
 - Elevator cabs and all associated equipment;
 - Cooling towers and associated piping and equipment;
 - Roof air conditioning condensing units, roof vents, roof exhaust vents and ancillary equipment;

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- B. The City of Waltham will provide an Environmental Consultant to monitor the activities of the Contractor. Environmental sampling, including ambient air sampling and verification testing of cleaned nonporous materials shall be conducted by the Environmental Consultant throughout the project as deemed necessary.
- C. The buildings have passenger elevators. The elevators are out of service and are not available for use. Based on direction from the Department of Public Safety the elevators must remain out of service, with the fuses removed and main line disconnects maintained in the off position.
- D. Related Work: The following items are not included in this Section and will be performed under the Designated Sections:
 - 1. Section 015000: TEMPORARY FACILITIES.
 - 2. Section 024100: BUILDING AND ANCILLARY STRUCTURES DEMOLITION
 - 3. Section 025110; CONCRETE AND MASONRY DEMOLITION
 - 3. Section 028100: MANAGEMENT AND DISPOSAL OF WASTE STREAMS
 - 4. Section 028433: REMOVAL OF PCB CONTAINING CAULK MATERIALS

1.3 SCHEDULE AND SEQUENCING

- A. Selective demolition will precede general building demolition and as such, the schedule for selective demolition is strictly governed by the allowable time mandated by the City of Waltham.
- B. The Contractor shall not perform selective demolition activities until painting of PCB Bulk Product Waste masonry and concrete, asbestos abatement, and miscellaneous hazardous materials removal has occurred, unless otherwise approved or directed by the City of Waltham and the Designer.
- C. The Designer will confirm that required painting of PCB Bulk Product Waste masonry and concrete, asbestos abatement, and PCB-remediation activities have been completed and that clearance samples have been collected and shown to be within the applicable standards.
- D. The Contractor shall develop a schedule for each phase of the work for discussion and finalization at the Pre-Construction Conference in cooperation with the City of Waltham and the Designer. The City of Waltham and the Designer may choose to alter the work sequence as required.
- E. The Contractor shall update the schedule and submit any schedule changes for review by the Designer at the weekly construction meetings.

1.4 SECTION INCLUDES

- A. Regulatory Requirements
- B. Submittals
- C. Products
- D. Examination
- E. Employee Protection
- F. Establishment of Frame Removal Work Areas
- G. Establishment of Door Frame Decontamination Work Areas
- H. General Requirements
- I. Selective Demolition Procedures
- J. Frame Relocation
- K. Frame Decontamination
- L. Certification of Remediation
- M. Waste Management
- N. Restoration

1.5 REGULATORY REQUIREMENTS

- A. The Work of this Section shall be performed in accordance with all applicable Federal, State, and local regulations, laws, codes and ordinances governing the handling, decontamination, and management of contaminated materials, demolition debris, and solid waste.
- B. The Contractor shall adhere to all permit requirements or inference in any Submittal document, approval letter or other correspondence.

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1.6 SUBMITTALS

- A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300.
- B. Product data, catalog sheets, specifications, and application instructions for any products used.
- C. Other project-wide submittals are identified and specified in Section 028100.

1.7 PROJECT CONDITIONS

- A. The City of Waltham assumes no responsibility for actual condition of portions of buildings to be selectively demolished.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by the City of Waltham as far as practical.
- C. Asbestos: Asbestos and hazardous materials may be present in the portions of buildings to be selectively demolished. Copies of information regarding the presence of asbestos and hazardous materials are attached in Attachments A, B, and C. The Contractor shall examine the information to become aware of locations where asbestos and hazardous materials are present.
- D. Asbestos abatement and hazardous material removal is specified elsewhere in the Contract Documents. PCB remediation activities are specified elsewhere in the Contract Documents.
- E. Do not disturb asbestos, any material suspected of containing asbestos, PCBs, or hazardous material except under the procedures specified elsewhere in the Contract Documents.

PART 2- PRODUCTS

2.1 GENERAL

- A. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with the operation of others at the Site or with employees' access and safety. The storage area(s) shall be proposed by the Contractor and approved by the Designer.
- B. All materials shall be delivered to the Site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description. No damaged or deteriorating materials shall be used.
- C. Damaged or deteriorated materials shall not be used and shall be promptly removed from the Site.
- D. All materials and equipment shall comply, at a minimum, with all sections of these specifications, applicable federal and state regulations and policies.

2.2 MATERIALS

- A. Waste containers shall be suitable for loading, temporary storage, transport and unloading of selected demolition waste without risk of release to the Site and environment. Waste containers shall be suitable for transportation in conformance with all applicable Federal and State required laws, regulations, and policies.

2.3 SAFETY SUPPLIES AND EQUIPMENT

- A. All workers shall be provided with suitable personal protection equipment as specified in the Contractor's Health and Safety Plan. This equipment shall include disposal coveralls, head protection, foot coverings, gloves, and eye protection. Minimum respiratory protection shall be compliant with current OSHA regulations.
- B. Air monitoring equipment of the type and quantity required to monitor operations and conduct personnel exposure surveillance in accordance with OSHA requirements.

2.4 TOOLS AND EQUIPMENT

- A. The Contractor shall provide tools and equipment that are suitable for removal of interior and designated exterior materials to be selectively demolished, including but not limited to:
 - 1. Electrical equipment, protective devices and power cables shall conform to all applicable codes.
 - 2. Low-pressure garden sprayers, in sufficient quantity and suitable for application of wetting agent/surfactant, shall be used.

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3. Ladders, man-lifts, scissor lifts, and/or scaffolds of adequate length, strength and sufficient quantity to support the work schedule. Scaffolds shall be equipped with safety rails and kick boards in compliance with OSHA requirements.

PART 3- EXECUTION

3.1 **EXAMINATION**

- A. Perform a visual survey of each work area and review conditions at the site for safety reasons
- B. Survey existing conditions to determine extent of selective demolition required and to develop appropriate means and methods to access and safely remove the materials.
- C. Inventory and record the condition of items to be removed and stored on-site, if any.
- D. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 **EMPLOYEE PROTECTION**

- A. The Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.
- B. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA and USEPA standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.
- C. The Contractor shall install OSHA compliant guardrails in areas where fall hazards exist.
- D. All employees of the Contractor who perform selective demolition work shall be properly trained to perform such duties.
- E. Posting of regulations: Display the following documents in the clean changing area, in public view, for the full duration of the work:
 - 1. Instructions for removing injured persons from work area.
 - 2. Post emergency action plan at the work site. This plan shall also include telephone numbers for hospital, doctor and Fire Company.

3.3 GENERAL REQUIREMENTS

- A. The Contractor shall:
1. Shut down and lock out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
 2. Coordinate all power and fire alarm isolation with the appropriate representatives.
 3. When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.
 4. Conduct selective demolition operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 5. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways during selective demolition, where required by the Designer, OSHA or other authorities having jurisdiction.
 6. Protect existing site improvements and appurtenances to remain.
- B. Ladders and/or scaffolds to be utilized throughout this project shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.
- C. Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

3.4 SELECTIVE DEMOLITION PROCEDURES

- A. The Contractor shall select means and methods for selective demolition. Means and methods selected shall complete the Work within limitations of governing regulations. Selected means and methods shall provide the least disturbance to the substrate material.
- B. Independent of the selected means and methods, the materials to be selectively demolished will be moistened using the wetting agent to minimize dust generation.
- C. Clean up immediately after component removals have been completed. Use High Efficiency Particulate Air (HEPA) filtered vacuum dust collection system to remove any dust located behind the component removed.

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3.5 PREPARATION

- A. Conduct selective demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
- B. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City of Waltham. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- C. Conduct selective demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
- D. Erect temporary protection, such as walks, fences, railings, where required by the Designer. Refer to Section 024100 — BUILDING AND ANCILLARY STRUCTURES DEMOLITION, Section 015000 — TEMPORARY FACILITIES AND CONTROLS, and the Drawings for additional requirements.
- E. Protect existing site improvements and appurtenances to remain.

3.6 SELECTIVE DEMOLITION

- A. Selectively demolish and remove materials described herein. Use methods required to complete Work within limitations of governing regulations.
- B. Proceed with selective demolition systematically, from higher to lower levels. Complete selective demolition work above each floor or tier before disturbing supporting members on lower levels.
- C. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. These devices must be equipped with HEPA filtration if they are used to cut materials with PCB residues above 1 ppm.
- D. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- E. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices and a fire watch detail during all flame-cutting operations.
- F. Maintain adequate ventilation when using cutting torches.
- G. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

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- H. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact, damage to sidewalk below, or dust generation.
- I. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls sidewalks, and sidewalk retaining walls.
- J. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
- K. Selectively demolish the surrounding concrete and masonry not to be salvaged, in small sections. Cut concrete and masonry at junctures between demolished and salvaged items, using power-driven masonry saw or hand tools; do not use power-driven impact tools.

3.7 WASTE MANAGEMENT

- A. Dispose of all selective demolition waste in accordance with federal, state, and local regulations.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.8 RESTORATION

- A. Contaminated conditions shall be cleaned up immediately.
- B. Damages to existing structures and/or features shall be restored to its original conditions or better at the discretion of the City of Waltham.

END OF SECTION

SECTION 025000

ASBESTOS REMOVAL AND RELATED WORK

PART 1 - GENERAL

1.1 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 of the Specifications.
- B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article III, Paragraph 1 of the CONTRACT AND GENERAL CONDITIONS.

1.2 DESCRIPTION OF WORK

- A. The intent of the Work is to completely remove all Asbestos Containing Materials (ACM) from the Site buildings to accommodate building demolition and redevelopment work. The CONTRACTOR and Asbestos Abatement SubCONTRACTOR shall furnish all labor, material, supervision, construction tools, transport vehicles and equipment necessary to perform the following work:
 - 1. Pre-bid inspection. The potential Bidders are required to visit the Project Buildings prior to bidding in order to determine the actual amounts of asbestos containing and asbestos contaminated materials to be removed, as well as staging and protection requirements.
 - 2. Documentation of worker training, respiratory protection and medical examination.
 - 3. Provide access, support and protection to all authorized visitors and inspectors.
 - 4. Filing of and/or obtaining all required notifications, permits, work plans and payment of all required associated costs and fees.
 - 5. Work area preparation and work practices.
 - 6. Proper removal, packaging, transport and disposal of all asbestos containing materials as specified herein. Note that vehicles transporting bulk-loaded demolition debris containing a reportable quantity (greater than 1 pound) of asbestos shall be properly placarded in accordance with USDOT regulations. All drivers shall be appropriately trained and licensed to transport this material.
 - 7. Isolation of the Work Area for the duration of the works so as to prevent asbestos contaminated dust or debris from passing beyond the isolated area.

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8. As part of the work will be performed in the winter months, the CONTRACTOR shall be responsible for snow removal as necessary for the removal of asbestos-containing roofing materials, window caulking and glazing materials and other ACM and PACM.
- B. It is the CONTRACTOR's responsibility to determine the most efficient method to legally perform this Work. Unless specifically noted, this Specification does not dictate specific methods to be implemented in the performance of the Work. The entire application of all ACMs shall be removed inclusive of any substrate contamination, whether present on the substrate surface or embedded in the matrix of the substrate component. After abatement is complete, the building or equipment component must be rendered completely free of asbestos and rendered recyclable, reusable, and/or disposable in accordance with all applicable regulations.
- C. The CONTRACTOR shall perform all work in accordance with these specifications, the USEPA and OSHA regulations, NIOSH recommendations, MassDEP and MassDLS regulations, local statutes, local ordinances, local codes and any other applicable federal, state and local government regulations and guidelines.
- D. Several of the buildings have connecting tunnels to other buildings that are on the Former Fernald School campus. Asbestos abatement shall be performed within and on Buildings involved in the project (Greene, Kelly, Shriver, and CERC buildings). Abatement activities will be completed to the outer edge of the building foundations. Any remaining piping leading into the connecting tunnels will be cut and capped, and the connecting tunnels between will be sealed prior to the demolition of the buildings. Abatement of any ACM remaining in the connecting tunnel is outside of the scope of this project and will be conducted at a later date when the site is redeveloped.
- E. The proposed work includes the removal of the following identified ACMs:

GREENE BUILDING	
2'x2' pinhole cementitious ceiling tile	Tan pebble linoleum
Pipe insulation/elbows/tees	Green linoleum
Beige mottled floor tile and associated black mastic	Black pipe flange gasketing
Grey 9"x9" floor tile and associated black mastic	Transite panels/wiring
Beige/ w/ black streak 9"x9" floor tile	Exterior brown and beige vent caulk
residual asbestos debris on piping	
KELLY BUILDING	
Interior window glazing	White skim coat on concrete ceilings/columns
Pipe insulation/elbows/tees and debris	9"x9" grey floor tile
Door caulk*	
SHRIVER BUILDING	
Caulking Around Elevator	Transite Fume Hood
Black Paper/Mastic on Fiberglass HVAC Insulation	Transite Lab Top
Generator Exhaust Insulation	12"x12" Floor Tile and Associated Black Mastic
Black and White 12"x12" Floor Tile/	2'x4' Lengthwise Fissure Ceiling Tile

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Mastic	
Transite a/w Elevator Equipment Panels	Fire Door Insulation
Transite / Paper / Electrical Wiring Insulation	Carpet Mastic
White/Pinkish Sink Undercoating	Black Sink Undercoating
Textured Paint on Concrete	Red Duct Sealant
Wood Wall Panel Mastic	Residual Floor Tile Mastic
Transite Fume Exhaust Pipe	Green Linoleum Mastic
Brown Caulk at Roof Deck	Transite Window Panels
Textured Concrete	
CERC BUILDING	
Water Tank Insulation	9”X9” Tan Floor Tile/Mastic
Mudded Fitting on Fiberglass Pipe Insulation	9”x9” Grey Streak Floor Tile/Mastic
Flex Connectors	9”X9” Brown Floor Tile/Mastic
12”x12” Beige Mottled Floor Tile	9”X9” White Floor Tile/Mastic
Black Sink Undercoat	9”X9” Blue Streak Floor Tile/Mastic
Transite at Windows in Tunnel	Residual Black Floor Tile Mastic
Base Flashing Roof Tars/ Felts	Perimeter Flashing Tars / Felts
White Window Frame Caulk*	Grey Window Glazing*

*Items that are both ACM and PCB-containing. These items must be managed as both ACM and PCB bulk product waste. Refer to SECTION 028433 – PCB WASTE CAULKING REMOVAL for PCB waste management.

- F. The CONTRACTOR is advised that paints and debris existing within the buildings and tunnels may contain lead. The CONTRACTOR shall at all times be in compliance with OSHA regulation 29 CFR 1926.62 Lead in Construction; Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents.

1.3 SCHEDULING

- A. The CONTRACTOR and the Consultant shall develop an abatement schedule for each phase of work at the Pre-Construction Conference. The Consultant may choose to alter the work sequence as they see fit.
- B. The CONTRACTOR shall update the schedule and submit any schedule changes for review by the Consultant at the weekly construction meetings.

1.4 LOCATION OF WORK AND SITE CONSTRAINTS

- A. Location of work areas, descriptions, estimated types and quantities of asbestos-containing materials (ACM) are described in the Abatement Schedule included in Table 1. If additional ACM's are encountered, CONTRACTOR shall notify Consultant immediately and have an asbestos removal team prepared to abate the material.
- B. The Abatement Schedule identifies all suspect ACM materials encountered and bulk sampled during the survey, including concealed piping insulation. The quantities are provided for guidance

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and may not correspond exactly to the quantity to be removed. CONTRACTOR shall determine quantities of asbestos for bidding purposes.

- C. Temporary Utilities: The CONTRACTOR will be required to provide temporary power, water, and bathroom facilities during the abatement period. Refer to Section 015000 for procedures and costs relating to sanitary facilities, temporary power and temporary water.

1.5 AUTHORITY TO STOP WORK

- A. City of Waltham has the authority to stop the work at any time City of Waltham determines either personally or through the services of City of Waltham's Asbestos Monitor that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of City of Waltham's Asbestos Monitor. Standby time required to resolve violations shall be at the CONTRACTOR's expense, and any fines, etc., for hazardous conditions or non-compliance will be at the CONTRACTOR's expense, and will not be grounds for change orders or time extension.
- B. City of Waltham's Asbestos Monitor shall notify the CONTRACTOR when airborne fiber levels measured outside the work area enclosures or at the boundary of regulated areas exceed 0.010 f/cc or established background levels, at which time City of Waltham's Asbestos Monitor will direct the CONTRACTOR to stop work, determine the cause of the elevated fiber levels and implement corrective actions.
- C. Stop work orders may be issued for, but not limited to the following:
 - 1. Breaks in barriers.
 - 2. Loss of negative air (0.02 inches of water column - minimum negative pressure to be maintained).
 - 3. Leakage to other areas.
 - 4. Fiber concentrations outside the work area, which exceed 0.010 f/cc for any one PCM sample.
 - 5. If the CONTRACTOR disregards laws or regulations of any regulatory or governing body having jurisdiction.
 - 6. If the CONTRACTOR's work presents a risk to the building, to building occupants to the general public or to the environment as determined by City of Waltham or the Consultant.
- D. The absence of a stop work order by City of Waltham or City of Waltham's Asbestos Monitor shall not in any way be construed as an approval or acceptance of the CONTRACTOR's work.

1.6 CONTRACTOR QUALIFICATIONS

- A. City of Waltham shall approve the proposed Asbestos Abatement SubCONTRACTOR and will be based upon submission by the CONTRACTOR of the following:

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1. Insurance and bonding as stated in the Contract Documents.
2. Licensing by the MassDLS as an Asbestos Abatement CONTRACTOR.
3. Names and locations of at least three asbestos abatement projects similar in scope and size to this project completed by the proposed Asbestos Abatement SubCONTRACTOR. Provide the name and phone number of a contact person for each referenced asbestos abatement project.

1.7 PERSONNEL QUALIFICATIONS

- A. All personnel of the CONTRACTOR or any approved SubCONTRACTORS involved with this work shall meet the following minimum qualifications:
 1. Asbestos worker medical examination within the past year in accordance with OSHA 1926.1001 with a physician's written opinion that the worker has no condition that would preclude him/her from working with asbestos or wearing a respirator.
 2. Current certification by the MassDLS as an Asbestos Supervisor or Asbestos Worker.

1.8 AVAILABILITY OF TRAINED PERSONNEL

- A. There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work within the required schedule. No untrained nor fully qualified and pre-approved person shall be employed to speed up completion of the abatement work.

1.9 DEFINITIONS

- A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.
- B. Abatement: Procedures to control fiber release from asbestos-containing materials. Includes encapsulation, enclosure, and removal.
- C. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.
- D. Asbestos: The name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible and are separated into fibers. Asbestos includes chrysotile, crocidolite, amosite, anthophyllite, and actinolite.
- E. ACM or Asbestos-containing materials: Any material containing more than one percent by weight of asbestos of any type or mixture of types.
- F. Asbestos wastes: All building materials and debris, insulation, disposable clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, or any abatement

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equipment that is or has been contaminated with asbestos and cannot be completely cleaned by vacuuming or by washing.

- G. Authorized Visitors: Any visitor authorized by City of Waltham, the Consultant or any representative of a regulatory agency or other agency having jurisdiction over the project.
- H. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.
- I. Critical Barrier: A solid asbestos impermeable partition erected to constitute a work area closure; the outer perimeter of an asbestos work area, usually erected across corridors or other open spaces to complete containment.
- J. Decontamination Enclosure System: A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
- K. Encapsulation: All herein specified procedures necessary to coat all asbestos-containing materials with an Encapsulant to control the possible release of asbestos fibers into the ambient air.
- L. Enclosure: All herein specified procedures necessary to complete enclosure of all ACM behind airtight impermeable, permanent barriers.
- M. Friable Asbestos Material: Material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
- N. Glovebag: A sack (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.
- O. HEPA Filter: Equipment with a High Efficiency Particulate Air (HEPA) filter, greater than 99.97 percent efficiency by 0.3-micron DOP test, and complying with ANSI Z9.2 (1979).
- P. PACM: Presumed asbestos-containing materials.
- Q. Removal: All herein specified procedures necessary to strip all ACM from designated areas and to dispose of these materials at an acceptable site.
- R. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
- S. TSI: Thermal system insulations which include all types of insulating materials on boilers, tanks, heat exchangers, pipes, ducts, breeching and other machinery, equipment and components which require insulation.
- T. VAT: Vinyl asbestos (floor) tile.
- U. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

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1.10 EMERGENCY PRECAUTIONS

- A. The CONTRACTOR shall develop and submit a written fire protection plan, which specifically addresses fire protection during asbestos abatement. This plan shall be submitted to City of Waltham for review prior to the start of work.
- B. The CONTRACTOR shall establish and maintain emergency and fire exits from the work areas. The CONTRACTOR shall submit a written emergency evacuation plan to the City and to the Consultant for review.
- C. Local emergency medical personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated, injured workers, and shall be advised on safe decontamination. The CONTRACTOR shall submit copies of such notifications to the Consultant.
- D. The CONTRACTOR shall have a written Health and Safety plan. When an injury occurs the CONTRACTOR shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.
- E. Before the CONTRACTOR starts any removal of the asbestos material, the CONTRACTOR shall notify the local police and fire departments as to the proper personal protective equipment required by persons providing emergency response services. The CONTRACTOR shall make every effort to help these agencies form plans of action should their personnel need to enter contaminated areas.

1.11 SUBMITTALS

- A. The CONTRACTOR shall submit each item in this Article according to the Conditions of the Contract and Section 013300, for information only, unless otherwise indicated.
- B. All submittals shall be submitted to the Consultant prior to the start of work. Submittals that vary from building to building must be submitted prior to the start of work in the applicable building. Duplication of submittals that are constant from building to building is not required.
- C. Abatement Plans using conventional containment and negative pressure shall be submitted on a building-by-building basis prior to work in each building. The Work Plan shall include, at a minimum, the following:
 - 1. Layout of project execution components showing the configuration of the containment area.
 - 2. A description of Security System, warning signs and labels for bags and drums.
 - 3. Access routes to asbestos controlled areas.
 - 4. Copy of notification to police department, fire department and local ambulance and hospital.
 - 5. A description of wetting agents and low pressure wetting system.

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6. Description of enclosures to be used.
 7. Description of wall, floor and opening coverings and sealing tapes.
 8. Fire Protection Plan, safety plan, and emergency evacuation plan.
 9. Detailed plans for decontamination facilities, toilets and systems allowing intra-room communication and communication between the work area and other areas.
 10. Engineering systems for exposure control showing the number, location and capacity of exhaust systems, the expected direction of flow and the negative pressure in each work area.
 11. Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2 and to requirements as listed in this Specification.
 12. Materials Safety Data Sheets (MSDS's) for all products used on the Project.
 13. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.
- D. If bulk demolition of ACM is utilized, a separate work plan shall be prepared by the CONTRACTOR addressing the bulk demolition and segregation of material. The CONTRACTOR shall submit this Work Plan to MassDEP for review and approval. This work plan shall include the following:
1. A description of the wetting procedures to be used for all phases of the work including, but not limited to demolition, load-out, etc. This item shall address the amount of water to be used, size and number of hoses, water source and means for determining whether adequate water is being used (lack of visible emissions, compliance with air sampling action level, etc.). At minimum, several 1.5" or larger fire hoses shall be required with adequate pressure to apply water to all areas of demolition.
 2. A description of the procedures to be used to contain water run-off.
 3. Proposed methodology of bulk loading including minimizing cross-contamination of surrounding areas.
 4. A description of air monitoring locations, equipment, and procedures.
 5. A description of the proposed transport vehicles including transporter's name, size of vehicles, type of container, etc.
 6. A description of the proposed packaging procedures (minimum of two, 10-mil pre-fabricated liners per load, sized to fit the transport vehicle).
 7. Proposed landfill with applicable license to accept asbestos waste.

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8. Proposed methodology to final clean basement floors and/or foundation walls after bulk materials have been removed.
 9. Proposed locations of remote decontamination facilities including written waiver from MassDLS and MassDEP for use of remote decontamination facility.
 10. Proposed methodology for decontamination of transport vehicles and demolition equipment including wash down procedures, provisions for capturing wash water, etc.
 11. Application for, and obtaining of waivers and exemptions which may be required by various regulatory agencies since this demolition work and clean-up will be performed instead of conventional asbestos abatement.
 12. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.
- E. To comply with applicable regulations, notify appropriate regulatory agencies of abatement activities.
1. Provide the required written notification at least 10 days before the start of the asbestos abatement activity to the MassDEP and MassDLS. MassDEP has indicated that an individual demolition and asbestos abatement permit will be required for each building.
 2. Provide the required written notification by registered mail to local authorities as required.
 3. Obtain and process all applicable forms and permits required.
- F. Sample literature for proposed disposable protective clothing to be used on this Project.
- G. Respiratory Protection System(s) including literature describing sample respirators, hoses and certificate with system literature for the air supply system from manufacturer stating that air supply system meets specifications on quality, quantity and escape time. These submittals are required only if supplied air respiratory protection is used.
- H. Certification of compliance with OSHA requirements including but not limited to medical surveillance, record keeping and personal monitoring.
- I. Documentation of certification in accordance with 453 CMR 6.00 for each employee.
- J. Final landfill destination(s) and copies of transporter and Landfill permits as well as Waste Shipment Records
- K. Copies of all Notifications made to Massachusetts Asbestos Program, Local Board of Health, Local Fire Department, and any other agencies, as required.
- L. Application for and obtaining of waivers and exemptions, which may be required by various regulatory agencies.

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1.12 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only. The list provided below is not intended to be all inclusive of each regulation prevailing over the work.
- B. Environmental Protection Agency (EPA):
 - 1. Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61).
 - 2. Guidance for Controlling Friable Asbestos-Containing Materials in Buildings.
 - 3. A Guide to Respiratory Protection for the Asbestos Abatement Industry.
- C. Occupational Safety and Health Administration (OSHA):
 - 1. Asbestos Construction Standard ARTICLE 29 CFR Part 1926.1101.
 - 2. Asbestos General Industry Standard ARTICLE 29 CFR 1910.1001
 - 3. Respiratory Protection, 29 CFR 1910.134
- D. National Institute for Occupational Safety and Health (NIOSH):
 - 1. "Respiratory Protection A Guide for the Employee."
- E. American National Standards Institute (ANSI):
 - 1. Z86.1-1973 - Commodity Specification for Air.
 - 2. Z9.2 - HEPA Filter Specifications.
 - 3. Z88.2-1980-Respiratory Protective Equipment
- F. Massachusetts Department of Labor, Division of Occupational Safety
 - 1. The Removal, Containment or Encapsulation of Asbestos (453 CMR 6)
- G. Massachusetts Department of Environmental Protection
 - 1. Amendments to Regulations 310 CMR 7.00, 7.09, 7.15 to Control Airborne Asbestos Emissions for the Control of Air Pollution.
 - 2. DEP Policy Statement Concerning Non-Friable Asbestos Containing Materials, Policy #BWP-96-012.
- H. U.S. Department of Transportation
 - 1. 49 CFR 171 - 180, Hazardous Materials Regulations

2. 51 CFR 42176

PART 2 - MATERIALS AND EQUIPMENT

2.1 GENERAL

- A. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operation of others at the site, or employee's access and safety.
- B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises. Materials that become contaminated with asbestos-containing material shall be thoroughly cleaned, or sealed in plastic bags or sheeting, labeled, and legally disposed of in an approved, secure landfill.
- C. All materials and equipment shall comply, at a minimum, with all sections of this specification, applicable federal, state, and local codes, and industry standards.

2.2 ABATEMENT EQUIPMENT & SUPPLIES

- A. HEPA-Filtered Exhausts - Air inside each work area shall be exhausted through a High Efficiency Particulate Air (HEPA) filter. Commercially manufactured HEPA-filtered exhaust units, with specification plates intact, must be provided for each work area to attain, at a minimum, four air volume changes per hour and an inward flow velocity of clean air into each work area at the Decontamination Facility of at least 100 feet per minute. The HEPA filter shall be preceded by replaceable pre-filters and the unit must be designed so that it cannot be operated unless all filters are in place. The units must also be designed with a gauge to indicate the pressure drop across filters, and lights and audible alarms to indicate that the filters are properly installed, functional, and when they must be changed. Flexible ducting shall be required to allow exhausting to the exterior of the building. No exhaust with any other type of particulate cleaning system (such as electrostatic precipitators) shall be allowed without prior written approval.
- B. Plastic Sheeting ("Poly") and Bags - shall be polyethylene or equivalent with a thickness of at least 6 mil for all applications.
- C. Wetting Agent or Surfactant - shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and non-carcinogenic. It shall be applied as a mist using a low pressure sprayer recommended by the surfactant manufacturer.
- D. Tape and Glue - shall be capable of sealing plastic joints and attaching plastic to finished surfaces. The bonding strength and resulting seal integrity shall not be affected by mist or water, wetting or encapsulating agent, or any other materials to be used in the work area.

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- E. Warning Signs and Labels - shall comply with all federal, state, and local codes and regulations.
- F. Waste Containers and Transportation - shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without risk of ripping, rupture, or exposure to persons, or emissions to the atmosphere. - Transportation methods -shall comply with the provisions of 40 CFR 61, Subpart M, and with any and all state and local hazardous or special waste regulations for temporary storage, transport, and disposal if such codes are enforced in states in which the waste will be stored, transported, or disposed.
- G. Truck Liners - shall be polyethylene or equivalent with a thickness of at least 10 mil for all applications

2.3 SAFETY SUPPLIES AND EQUIPMENT

- A. Respirator Types - Provide all workers with a full or half face piece respirator which is approved by NIOSH/MSHA for protection against airborne asbestos, and meets the requirements of the OSHA Asbestos Standard. Provide respirators for each worker and at least two extra respirators for use by approved visitors. Minimum respiratory protection required shall be compliant with current OSHA and MassDLS regulations including 453 CMR 6.00 and TITLE 29 CFR 1926.1101
- B. Protective Clothing - Provide all workers and approved visitors with disposable coveralls, head and foot coverings, gloves, eye protection (i.e., safety glasses) and half-face respiratory protection including replacement HEPA filter cartridges.

2.4 ENCLOSURES, SHOWERS AND TOILETS FOR REMOVAL

- A. For each abatement area, provide decontamination facilities located in an area agreed upon with the Consultant. The decontamination facilities shall include a Decontamination Enclosure System for workers and visitors and a Decontamination Enclosure System for loading of asbestos into trucks for transportation to the landfill.
- B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms that serve as three air locks as follows: Clean Room at entrance followed by Shower Room followed by an Equipment Room leading to the Work Area.
- C. The Decontamination Enclosure System for removing asbestos bags or drums from the work area (as applicable) shall consist of an Air Lock from the Work Area leading into the Bag Wash and Wipe Room, and another Air Lock leading to outside the work area.
- D. An Airlock is a system permitting unidirectional flow of air through the decontamination unit. It consists of two curtained doorways at least eight feet apart. Each curtained doorway shall be constructed by placing three overlapping sheets of plastic over a framed doorway, securing each along the top of the doorway. The first and third sheet shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. Where size of work area permits, eight-foot distance between doorways is acceptable. Where size of work area is prohibitive, distance between doorways may be adjusted but must allow enough space for one doorway to be closed before the next doorway is opened.

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- E. Provide lockers for storage of workers' street clothes in the clean room. Provide in the same room uncontaminated disposable protective clothing and gear for workers to don prior to entering the contaminated area and for workers to dress into street clothing after they have showered and dried in the shower room as they exit from the contaminated area.
- F. Provide shower room facilities with hot and cold water so arranged as to provide complete showering of workers and visitors as they exit from the contaminated area. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within a ten-minute period. The hot and cold water shower shall be functional at all times while workers are within the work area enclosure. Shower water temperature shall be controlled at the tap.
- G. Provide the Equipment Room with storage for contaminated clothing and equipment. In this room, workers and visitors shall dispose of their disposable protective clothing except the respirator as they prepare to enter the Shower Room.
- H. The Bag Wash and Wipe Room shall be equipped with the facilities to wash and wipe the outside of the drum or bags prior to the loading into the trucks for transportation to a landfill. Make provisions to prevent any contaminated run-off from the Bag Wash Room.
- I. The Clean Drum Storage Room shall remain clean at all times.
- J. Provide heating and ventilation in entire Decontamination System so that airflow will be from the outside towards the workspace.

2.5 TOOLS AND EQUIPMENT

- A. Airless Sprayer: Airless sprayers, in sufficient quantity and suitable for application of encapsulating material, shall be used.
- B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize high efficiency particulate air (HEPA) filtration systems, 99.97% efficient to 0.3 microns particulate size.
- C. Scaffolding: Scaffolding, lifts, ladders, and aerial equipment as required to accomplish the specified work, shall meet all applicable safety regulations.
- D. Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without exposure to persons or property. The equipment shall be secured at all times and access restricted to unauthorized personnel.
- E. Vacuum Equipment: All vacuum equipment utilized in the work area shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size. Deliver all vacuums to the site with clean waste containers and intact, undamaged HEPA filters installed.

PART 3 – EXECUTION

3.1 COORDINATION AND SCHEDULING

- A. The Asbestos Abatement SubCONTRACTOR shall coordinate all work with the Consultant and the CONTRACTOR.
- B. The CONTRACTOR shall submit to the Consultant prior to contract performance, a schedule of work including sequencing of asbestos removal areas and demolition.
- C. The CONTRACTOR shall give not less than a two-week advance notice of proposed time for shutting down or interrupting any utility, service or facility, which may affect normal facility operations.
- D. The CONTRACTOR shall make all required notifications and obtain all permits including, but not limited to MassDEP, MassDLS, All associated costs and fees shall be paid for by the Asbestos Abatement SubCONTRACTOR and included in the base bid price.

3.2 RESPIRATORY PROTECTION SYSTEMS

- A. Provide all workers and authorized visitors with NIOSH approved respirators compliant with OSHA regulations and a sufficient quantity of disposable filters, so that workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos or other hazardous materials prior to their use.
- B. Workers shall always wear a respirator properly fitted on the face while within the work area enclosure and decontamination and bag/drum wash areas. Any worker failing to wear his/her respirator or in any way performing his/her work in an unsafe manner shall be restricted from working at this site.
- C. Instruct and train workers in proper respirator use.

3.3 PROTECTIVE CLOTHING

- A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.
- B. Provide eye protection and hard hats as required by job conditions and safety regulations.
- C. Reusable footwear, hard hats and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work.
- D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities

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- E. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace use the following procedures:
1. Entering from the outside: Change from street clothes into protective clothing and wear clean protective gear. Go through shower room into Dirty Equipment Room, pick up equipment and tools and enter the work area.
 2. Exiting from the Work Area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room, store the decontaminated respirator in the assigned space and dress into street clothes.
 3. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and the handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine-exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires.
 4. The CONTRACTOR shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.
- F. All respiratory equipment shall be inspected by CONTRACTOR's personnel at the beginning of each work period, including breaks and lunch periods.

3.4 GENERAL PREPARATION PROCEDURES

- A. Upon receipt of a Notice to Proceed, the CONTRACTOR shall meet at the Site with the Consultant to reach agreement on:
1. Scope and manner of work performance and all schedules.
 2. CONTRACTOR and supporting vendor vehicle access and parking.
 3. CONTRACTOR access to the work areas, including approved doors, stairways, and corridors.
 4. Location of water supply and wastewater drain connection points, if available.
 5. Determination of all equipment and other items to be removed from the work areas, and the location of temporary storage space, if applicable.
 6. Any other logistical factors to minimize interference with public safety and health, and other CONTRACTOR activities.
- B. Prepare each work area according to the following general sequence of procedures to ensure that

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proper fiber containment and protection systems are installed before any work, which could generate airborne asbestos fibers.

1. Erect barricades, post access restriction signs, seal all openings into the work area airtight (including doors, chases, shafts, and other vertical penetrations), and erect or install Decontamination Facilities and HEPA exhaust systems.
2. Install poly sheeting in the work zone. Perform pre-cleaning/surface decontamination where appropriate prior to installing protective poly sheeting.
3. Isolate and seal airtight with plastic and tape all HVAC system openings in the work area. All HVAC or exhaust systems within, or ductwork passing through, a fully contained removal air shall be inactivated (this does not refer to glove bag removal areas).
4. Obtain formal approval from Consultant of all preparation work and containment areas before commencing asbestos removal. The Consultant shall be given at least 48 hours notification of the intent to start removal work in any work area.
5. If saw cutting or any other method or device that renders roofing friable is utilized during asphalt-based, asbestos-containing roofing removal, then a negative air containment area must be erected.

C. Tunnel and Conduit Coordination

1. The Asbestos Abatement SubCONTRACTOR is responsible for the removal of any asbestos containing pipe insulation up to the outer boundary of the building foundation in any connecting tunnel associated with the project buildings. All piping or conduit will be cut and capped at the outer boundary of the building foundation, and the connecting tunnel will be sealed off. Abatement of any ACM remaining in the connecting tunnel is outside of the scope of this project and will be conducted at a later date when the site is redeveloped.

D. Isolation of Electrical Systems

1. The scope of the electrical isolation work covers the protection of electrical equipment that is in areas where asbestos removal work is performed and where the water used for wetting the material before or during removal could possibly contact the equipment and create a hazard.
2. Provide portable electrical panels with ground fault protection for all non-battery power requirements. These panels shall have sufficient capacity for all HEPA exhausts and vacuums, power tools, portable lighting, and all other electrical needs.
3. Provide a licensed electrician to perform all electrical work including, but not limited to connecting, energizing, and de-energizing the electrical panels and to be on call to handle any electrical problem, which may arise during the course of the work.
4. All materials and workmanship shall comply with the latest editions of applicable codes, standards, and specifications.

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5. Once a work area becomes isolated by containment, only weatherproof lighting and washable tools and equipment will be allowed in the area.

3.5 DECONTAMINATION FACILITIES

- A. Description - Any person or thing exiting from the work areas must pass through a Decontamination Facility consisting of three separate, adjacent rooms separated by curtained entrances, constructed in accordance with applicable regulations. Bulk non-friable asbestos waste, which was packaged in a clean environment, does not require decontamination in a shower. All containers passing through the Decontamination Facility must be cleaned thoroughly before exiting the facility.
- B. Construction - Decontamination Facilities shall be constructed and maintained as specified in applicable regulations and shall be located in areas approved by Consultant.
- C. Manner of Operation - All personnel shall enter the Clean Room, remove and store street clothes, and put on clean protective clothing and respirators; then enter the Equipment Room, put on any additional equipment, and enter the work area. All personnel exiting the work area shall enter the Equipment Room, remove and store or dispose of all contaminated clothing and shoes, shower, and then put on street clothing in the Clean Room. Respirators shall be worn into and cleaned in the shower, and dried and stored in the Clean Room.
- D. Wastewater Disposal - All water from the shower and cleaning hose shall be collected, pumped through a 5.0-micron filter, and then legally drained to points approved by the Consultant. The CONTRACTOR shall legally handle, transport, and dispose of all filtrant and solids.
- E. Cleaning - Decontamination Facility shall be cleaned using a HEPA-filtered vacuum at least once every shift, or more frequently, if needed, to prevent dust accumulation.
- F. Prohibitions - Smoking, drinking, or eating shall not be permitted in any work area or Decontamination Facility.

3.6 WORK AREA ISOLATION

- A. Preclean any fixed objects or equipment within the work areas by using HEPA-filtered vacuum equipment and wet washing except where air samples indicate concentrations of airborne fibers less than 0.010 f/cc and where there is no contamination of any surfaces; then enclose with minimum 6-mil plastic sheeting sealed airtight.
- B. At minimum, large areas, such as open elevator shafts, doorways, and stairwells, shall be sealed with two layers of 6-mil poly over plywood on 2" x 4" framing or approved alternative.
- C. Protect and isolate the work area for the duration of work by completely sealing off all openings and fixtures (including, but not limited to, floors, walls, heating and ventilation ducts, doorways, corridors, windows, and lighting) using plastic sheeting sealed securely in place. The work area shall be sealed airtight to the extent possible.
- D. Seal airtight all holes or other openings in the ceiling above and the floor below in each work area

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with poly sheeting.

3.7 AIR FILTRATION SYSTEM - FULLY ENCLOSED WORK AREAS

- A. Provide negative air filtration system in the work area to maintain a minimum negative pressure of 0.02 inch of water. If negative air pressure of 0.02 inches is lost, work shall be halted until the required negative air pressure is restored.
- B. The CONTRACTOR shall provide local exhaust ventilation in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a High Efficiency Particulate Air (HEPA) filter capable of retaining 99.97% of particulate matter greater than or equal to 0.3 microns in diameter. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 CFM to 2,000 CFM. (under "clean" filter conditions).
- C. High Efficiency Particulate Air (HEPA) air filtration equipment shall be equipped with visible and audible alarms that indicate the equipment is operating properly and when the air filtration media requires replacement and/or equipment requires servicing.
- D. The system created to maintain the specified negative air pressure differential shall be capable of providing a minimum of one air change every 15 minutes. Fifteen-minute air changes are mandatory during removal of asbestos-containing materials. All HRPAs exhaust units shall be vented outside the building.
- E. All air filtration units utilized on this project shall be delivered to the site in good condition with no visible debris and shall have intact HEPA filters installed with no holes, voids or gouges in the filters. Pressure differential across the filters shall be less than 0.02".
- F. The air filtration system shall be operated on a continuous 24-hour basis throughout the abatement process through successful final air clearance testing and containment dismantling. The ventilation system shall be in accordance with EPA recommendations included in the "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings".
- G. No work will be allowed when the pressure differential in the work area is less than 0.02" relative to adjacent building areas.
- H. Employees should start removing the asbestos material at a location farthest from the exhaust units and work towards them. If an electric power failure occurs, removal must stop immediately and should not resume until power is restored and exhaust units are operating again.

3.8 WORK AREA EXHAUST

- A. Install one or more portable HEPA-filtered exhausts to maintain each work area, including the Decontamination Facility, under negative pressure, and to reduce airborne asbestos fiber concentrations.
- B. The exhaust(s) must be capable of providing at least an inward velocity through any unsealed

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openings, including the Decontamination Facility, of at least 100 fpm, and four full air changes per hour throughout the work area.

- C. All exhaust air shall pass through a HEPA filter before being discharged to the exterior of the building.
- D. Deficient air flows shall be immediately reported and work ceased until the situation is corrected.
- E. Exhaust system shall be operated constantly from the time that preparation is completed, until “clean air” certification is obtained.

3.9 APPROVAL OF CONTAINMENT AREAS

- A. After the work area has been prepared as specified, the CONTRACTOR shall request an inspection by City of Waltham’s Asbestos Monitor. No removal or disturbance of asbestos-contaminated materials or systems is to occur until the Consultant, has inspected and approved each separate prepared work area.
- B. Any deficiencies in the preparation work shall be promptly corrected in a manner satisfactory to the Consultant.

3.10 ASBESTOS REMOVAL PROCEDURES

- A. Demolition of block, concrete, plaster, gypsum board walls and ceilings, and other building materials, equipment and components to properly access and remove ACMs is part of the Asbestos Abatement SubCONTRACTOR’s work. Selective demolition shall be performed in a controlled manner as to not affect ACMs or PACMs in ceilings, wall cavities and/or pipe chases. Debris generated during the selective exploratory demolition work shall be properly separated and removed prior to performing any asbestos abatement/removal. Selective demolition and exploratory demolition shall be required for all buildings. Additional ACMs discovered in wall and ceiling cavities during this limited exploratory demolition shall be brought to the attention of the Consultant.
- B. The Asbestos Abatement SubCONTRACTOR shall remove all movable objects/items stored in the buildings unless otherwise specified. Non-porous items can be decontaminated and disposed of as conventional waste unless otherwise specified or regulated. Porous materials are to be disposed of as asbestos waste unless regulated or specified otherwise.
- C. Friable Asbestos-Containing Materials (Excluding Glovebag Removal):
 - 1. All asbestos-containing materials to be removed shall be contained within a negative pressure enclosure system, wetted with amended water and carefully removed to prevent droppage and creation of airborne dust.
 - 2. Once the removal of all asbestos-containing material is complete, all surfaces and walls within the area shall be thoroughly cleaned by wet wiping/cleaning, followed by thorough drying, and then HEPA vacuumed. A satisfactory encapsulant (lockdown material) shall be applied to all surfaces from which friable asbestos has been removed.

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3. The exterior of disposal bags, drums, and other containers shall be vacuumed and washed free of all visible asbestos fibers before their removal from the work area.
- D. Friable Asbestos-Containing Materials (Using Glovebag Removal Methods):
1. All glovebag removal operations shall be conducted in accordance with 29 CFR 1926.1101 and applicable state regulations. Glovebags cannot be slid on pipes or reused.
- E. Nonfriable Asbestos-Containing Materials:
1. If the CONTRACTOR and the Consultant determine, that the non-friable ACM can be removed without creating any airborne dust or loose friable asbestos, the specific practices listed herein shall be followed as approved in the CONTRACTOR's written work plan. Otherwise, the nonfriable asbestos must be removed under the conditions of a full negative-pressure enclosure.
 2. All non-friable asbestos removal areas shall be properly segregated by posting caution signs meeting the specifications of OSHA 29 CFR 1926.1101 at all locations and approaches to any location where airborne concentrations of asbestos have potential to exceed ambient background levels. Workers shall don all protective equipment prior to entering the regulated work area. The material shall be removed very carefully to minimize any breakage that may release airborne fibers.
- F. Asphalt-Based Roofing and Flashing Material Asbestos Removal
1. Operations involving the cutting or abrading of asphalt-based asbestos roofing material is considered to release sufficient friable material or fibers to constitute an asbestos abatement activity. All work using such equipment must be performed by licensed Asbestos Workers in a negative pressure enclosure. These restrictions may be modified if the CONTRACTOR uses slicing or shearing equipment or manual means to remove the asbestos materials and if the USEPA and state regulations and guidance documents on abatement of roofing materials are followed.
 2. Removal of roofing material prior to general building demolition shall be performed in accordance with 29 CFR 1926.1101(g)(8)(ii). Additionally, removal shall meet all requirements specified in the DEP Policy Statement Concerning Non-Friable Asbestos Containing Materials, Policy #BWP-96-012 as approved in the CONTRACTOR's site specific Work Plan required in Section 1.11.
 3. Work Procedures
 - a. Perform whatever procedures are necessary including the application of wet methods and covering materials to ensure that release of asbestos is reduced to no visible emissions. Work using any cutting or abrading equipment must be performed in a negative pressure enclosure.
 - b. Remove asbestos roofing materials using tools and equipment specified in regulatory guidance documents.

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- c. Continuously mist the work area as asbestos roofing materials are being removed from the structure.
- d. The CONTRACTOR shall make every attempt to remove all asbestos roofing materials intact. If removal of roofing systems will render the material friable, then the material shall be removed using the full containment methodology unless a waiver for work practice variance is obtained from MassDEP.
- e. All loose debris shall be immediately collected using HEPA-filter vacuums and/or wet cleaning methods. The vacuum debris and wipe materials shall be segregated, packaged, and disposed of as asbestos contaminated waste.
- f. Wet methods shall be used whenever operations call for the scraping of resilient roofing materials or mastic.
- g. Where cutting and abrading is prohibited, a negative pressure enclosure is not required provided the asphaltic roofing material is not in a friable state. Waste must be lowered by a crane, hoist, excavator, or dust-tight chute, in accordance with applicable regulations.

G. Floor Coverings, Mastics and Floor Leveling Compounds

- 1. The CONTRACTOR shall remove all asbestos-containing floor coverings, including but not limited, to 9"x 9" floor tile, 12"x 12" floor tile, floor sheeting, mastics on wood, mastic on concrete, multilayered floor coverings, floor levelers and stair treads.
- 2. Asbestos-containing floor coverings and mastics requiring abatement exist in virtually all buildings. Current building conditions vary from clean floors with accessible floor coverings to floor finishes covered with deteriorating building debris and equipment. If asbestos-containing floor tile adhesive is applied directly onto wood flooring, the Asbestos Abatement SubCONTRACTOR shall remove the wood contaminated by adhesive and disposed of contaminated wood as asbestos waste.
- 3. The CONTRACTOR shall remove and dispose of all asbestos-containing floor coverings, associated mastics, tar papers and floor levelers. The CONTRACTOR will encounter and shall remove floor coverings, etc. under the following conditions: ACM is under varying quantities of a) deteriorating non-asbestos wall & ceiling plaster, b) ceiling tile and paint debris, some of which is lead containing; c) under floor boards; d) under plywood; e) under building equipment (desks, chairs, shelving, cabinets, radiators, toilets, baseboard heating, etc.); f) under bird guano; g) under damaged thermal system insulation, h) on concrete, and i) on various wood underlayments. The CONTRACTOR is also responsible for the removal of cabinets and partition walls to access asbestos floor covering and adhesive mastic.
- 4. The CONTRACTOR shall eliminate all mastic remnants when positive. The CONTRACTOR shall remove all materials or substrates (i.e.: wood underlayments, floor levelers, etc.) if visible or microscopically detectable asbestos-containing mastic remains on these surfaces after abatement. The CONTRACTOR shall also remove as asbestos any non-asbestos mastics which are asbestos contaminated or become asbestos contaminated during asbestos abatement operations in that location.

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5. The Abatement Schedule identifies areas where floor coverings, mastics and floor levelers exist. The abatement schedule also identifies type of floor covering, general location and approximate quantity. The CONTRACTOR shall remove specified floor coverings under all conditions. All work associated with floor coverings abatement shall be reflected in the lump sum bid.
- H. Accessible Thermal System Insulation (TSI), Pipe, Fittings, Valves, and Debris
1. The CONTRACTOR shall remove and dispose of all accessible TSI pipe, fitting and valve insulation as identified in the Abatement Schedule in Table 1.
 2. The CONTRACTOR will encounter and shall remove TSI under varying building conditions. Virtually all buildings contain TSI in various areas. The TSI is in varying states of disrepair as a result of maturation, delamination, and/or vandalism. TSI debris is commingled with plaster, ceiling tiles, trash and general building debris. The TSI contamination exists on carpets and in hallways resulting from maturation, delamination, and/or tracking during vandalism. Some TSI is submerged in water and some is located in tight spaces, concealed in wall and floor cavities and chases. Some TSI is embedded in walls, floors, ceilings, etc.
 3. The Abatement Schedule identifies quantities of accessible TSI piping, general locations and general work environment description on a building-by-building basis. Furthermore, approximate quantities are provided for damaged TSI, surface area cleaning, etc. The Asbestos Abatement SubCONTRACTOR shall abate all accessible TSI from all areas of the building prior to demolition operations as part of their lump sum bid.
 4. In areas of building conduit spaces where limited headroom or the condition of the conduit prevents safe access by workers, as determined by the Consultant, the Asbestos Abatement SubCONTRACTOR will be allowed to “wrap and cut” segments of intact TSI pipe insulation while insulation remains on the pipe. The CONTRACTOR shall then transport the cut pipe section to a full containment area and remove insulation from the pipe. The CONTRACTOR shall fine clean pipe and remove from full containment as non-ACM. The CONTRACTOR must ensure the “cutting points” of the pipe are free of ACM prior to cutting. This action is specified for limited areas within crawlspaces or conduits only. In areas with sufficient access and headroom, the abatement of ACM pipe insulation shall follow standard removal practices. The CONTRACTOR will be required to remove asbestos insulation by the glovebag removal methodology to create a clean space to cut the pipe surface.
- I. Concealed TSI Pipe, Fittings, Valves and Debris
1. The Asbestos Abatement SubCONTRACTOR may encounter and shall investigate all areas of all buildings to locate concealed TSI pipe insulation, perform selective demolition to access all concealed TSI, remove and dispose of all TSI and contaminated porous building materials (or properly decontaminated thereof) and provide certification that all concealed TSI has been removed prior to demolition. If, during the course of demolition, TSI is found, the Asbestos Abatement SubCONTRACTOR shall access and abate TSI. Demolition activities will be suspended until the Consultant determines that identified TSI

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is successfully abated, however, demolition may be permitted to proceed in other buildings or locations where these ACMs will not be impacted.

2. The following are some examples of concealed areas that require abatement: Behind and above non-ACM plaster reinforced with wire lathe walls and ceilings; behind sheetrock walls and above ceilings; under wood floors; within floor trenches or floor grates covered with steel plating or concrete covers; under deteriorated building debris; under non-ACM blown-in insulation; inside heating/HVAC units; behind ceramic tiled walls and ceilings; above suspended ceilings; above spline tiled ceilings; behind wood wall paneling; partially buried in soil, submerged in water; between floor spaces; etc. Concealed TSI covers virtually all piping systems. Concealed TSI is commonly found in vertical and horizontal pipe chases behind walls and ceilings of rooms, bathrooms, wet walls, janitor closets, etc. The CONTRACTOR is also responsible for removing as ACM all commingled concrete slurry or building materials where TSI is embedded or has come in contact with such material.
3. The abatement schedule provides approximate quantities of concealed TSI on a floor-by-floor or per building basis. The CONTRACTOR shall locate and remove these materials as part of the lump sum bid.

J. Encapsulation:

1. After all asbestos-containing material is removed, seal the surface with an approved encapsulation material. Encapsulation materials shall be applied after clearance visual inspection has been performed by City of Waltham's Asbestos Monitor. The CONTRACTOR shall inform the Consultant whenever any asbestos-containing materials cannot be removed, whether in total or in part prior to encapsulating.
2. The encapsulant shall be prepared and applied according to the manufacturer's specifications. A Material Safety Data Sheet (MSDS) must be submitted to City of Waltham and the Consultant for acceptance for the encapsulant prior to its use at the Project Site. A copy of the MSDS must be available to the workers and the workers shall wear appropriate personal protective equipment as designated on the MSDS during the preparation and application of the encapsulant.

L. Bulk Waste Management

2. If bulk demolition is utilized for abatement, The Consultant shall prepare the methodology to be used to protect human health and the environment during all phases of demolition, load-out, transport and disposal of all debris generated by the demolition and removal of the asbestos containing materials and contaminated building debris. This work plan will also be submitted to the MassDEP for approval. The CONTRACTOR shall obtain all required waivers, variances and exemptions from all applicable regulatory agencies since the demolition of the designated buildings will not be performed following conventional asbestos abatement, as is typically required.
3. City of Waltham's Asbestos Monitor will be performing continuous air monitoring around the perimeter of designated buildings and areas during all phases of demolition, load out and cleaning. All samples will be analyzed at the Site using NIOSH Method 7400 or

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equivalent. PCM sample analysis will be performed within 2 hours of sample start time. If, at any time, air sample results (PCM Analysis) indicate airborne fiber concentrations in excess of 0.010 fibers per cubic centimeter of air, the CONTRACTOR shall stop work and the MassDEP will be notified. CONTRACTOR shall take direction from City of Waltham's Asbestos Monitor and/or the MassDEP regarding steps that must be taken to reduce the airborne fiber concentrations. Such steps may include working slower or more cautiously, additional wetting or other methods. The CONTRACTOR shall at all times use methods that maintain airborne fiber concentrations below 0.010 fibers per cubic centimeter. All costs incurred for maintaining airborne fiber concentrations below 0.010 fibers per cubic centimeter or for maintaining approval of MassDEP during the demolition process shall be considered part of the work and the responsibility of the CONTRACTOR. If any PCM air samples result in elevated airborne asbestos fiber levels, the work practices and engineering controls described in the CONTRACTOR's work plan and being employed at the Site shall be reviewed and modified until acceptable airborne fiber levels are achieved.

3.11 WORK AREA CLEANUP, DECONTAMINATION AND WASTE DISPOSAL

A. General Requirements

1. After all asbestos-containing or asbestos-contaminated materials have been removed, remove all wastes and perform a final cleanup and decontamination of each work area. Final cleaning shall be performed only after all waste is packaged and removed, but before reinstalling or demolishing any equipment, or dismantling any barrier, Decontamination Facilities, or protective coverings. Cleaning shall be subject to the approval of City of Waltham's Asbestos Monitor based on a visual inspection, surface dust wipe tests (if necessary), and air testing.

B. Cleaning Methods and Approvals

1. All waste containers and removal equipment shall be thoroughly cleaned with a HEPA-filtered vacuum, decontaminated with the use of amended water, and then promptly removed from the work area.
2. All surfaces in the work area shall be thoroughly wiped/washed clean and, after drying, thoroughly decontaminated with a HEPA-filtered vacuuming device then encapsulated.
3. After cleaning, City of Waltham's Asbestos Monitor shall inspect the work area. To facilitate scheduling of inspections and air tests, the CONTRACTOR shall notify City of Waltham's Asbestos Monitor of the anticipated completion of the final work area cleaning at least 48 hours in advance.
4. If any visible waste or fibers are observed within the work area during the inspection, the CONTRACTOR shall perform additional cleanup and decontamination.
5. If the air sample results are above the Air Quality Standard of 0.010 f/cc as measured by PCM analysis, the CONTRACTOR shall perform additional cleaning and decontamination, and the inspection and air tests shall be repeated at the CONTRACTOR's expense

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6. If the air sample results are below the Air Quality Standard of 0.010 f/cc, the Consultant shall give approval for the CONTRACTOR to remove all protective coverings, which do not comprise part of the work area seal, containment barrier, or Decontamination Facility.
7. Once these items have been properly packaged and removed from the work area as contaminated waste, package and properly dispose of all remaining plastic sheeting, disassemble and remove the Decontamination Facility and HEPA exhausts, and perform a final HEPA vacuuming and/or wet cleaning of all surfaces.
8. Upon completion of the cleaning, all temporary access openings shall be repaired and all unsafe conditions corrected.

C. Waste Disposal

1. General Requirements - All asbestos wastes (e.g., pipe lagging, floor tile, transite, etc.) must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state, and local regulations and codes.
2. Waste Labeling - If waste containers are not already so preprinted, warning labels having waterproof print and permanent adhesive shall be affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA and DOT labeling requirements.
3. Waste Packaging - All waste shall be thoroughly wetted when packaged and CONTRACTOR shall inspect each bag, drum or container to observe that water condensation is visible. Insufficiently wetted bags shall be opened, rewetted, and resealed inside a negative pressure enclosure. When a waste bag is full, it shall be securely sealed with tape, and then placed in the designated temporary storage area inside of the work area.

D. Waste Container Removal and Disposal Documentation

1. It is the responsibility of the CONTRACTOR to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Consultant must approve the landfill destination. The CONTRACTOR must comply fully with these documents and all U. S. Department of Transportation and EPA requirements.
2. The CONTRACTOR, transporter and landfill shall document generation, transport and disposal of the waste at the designated landfill by completing a Waste Shipment Record and forwarding the original along with the Bill of Lading to City of Waltham within the 30-day time period specified by USEPA.
3. To comply with the requirement that waste disposal of an approved landfill be documented, CONTRACTOR shall remove waste containers from work areas under the observation of Consultant, and shall complete appropriate documentation for each load of waste removed from the site.
4. Measure the volume of each container or load of waste removed from the Site. The

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CONTRACTOR shall provide City of Waltham's Asbestos Monitor with an estimated total volume of each load/container of waste and provide an accurate count of each type of container for each load BEFORE the waste is removed from the Site

5. Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, dump slips, or other forms. Proper truck placarding must be performed in accordance with USDOT regulations. Legible copies of all forms or licenses, and the signed original of the Waste Disposal Form (e.g., Asbestos Waste Shipment Record) for each waste load, shall be given to Consultant.
6. Waste may not be transported to and temporarily stored at a pre-approved off-site storage area owned by CONTRACTOR. All asbestos waste generated during this Project shall be secured onsite until shipping to the waste disposal facility. In addition, no asbestos waste generated from other sites not associated with this project shall be transported, stored, or shipped with asbestos waste generated from this Site.

3.12 MONITORING, TESTING AND INSPECTIONS

- A. All monitoring, with the exception of Asbestos Abatement SUBCONTRACTOR personnel monitoring, will be performed by City of Waltham's Asbestos Monitor. The CONTRACTOR is responsible for personnel monitoring in compliance with OSHA regulations. City of Waltham's Asbestos Monitor may, at his discretion, also conduct personnel monitoring on CONTRACTOR personnel. Monitoring by City of Waltham's Asbestos Monitor shall not relieve the CONTRACTOR of obligation to perform personal exposure assessments.
- B. The performance and execution of the work will be closely monitored throughout the abatement process and throughout the demolition process by City of Waltham's Asbestos Monitor. The monitoring will be inside the work areas, demolition sites and the surroundings to ensure full compliance with these specifications and all applicable regulations. The CONTRACTORS shall provide cooperation and support to City of Waltham's Asbestos Monitor throughout the abatement and demolition process. The continuous monitoring and checking may include air samples in the workspace, personnel samples at breathing levels for a number of workers to be determined solely by the City of Waltham's Asbestos Monitor, air samples in the areas surrounding the work area and the outside, checking of the Standard Operating Procedures, Engineering Control System, Respiratory Protection System, labeling, packaging, transporting and disposal of asbestos, Decontamination Facilities and procedures and any other aspects of the abatement process that may impact the health and safety of the public or the pollution of the environment. The continuous monitoring and checking is further intended to document type and quantities of ACM removed and to document the CONTRACTOR's compliance with regulations and the Contract Documents.
- C. The CONTRACTOR is responsible for meeting OSHA requirements for their personnel, including but not limited to, monitoring requirements, safety compliance and record keeping. Personal monitoring results from the previous day shall be posted each day, and legible copies of the results forwarded to City of Waltham's Asbestos Monitor.
- D. Final Clearance air sampling will be performed by Phase Contrast Microscopy in accordance with MassDLS protocols in work areas where clearance sampling is required.

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- E. If the concentration of all the air samples taken inside the work area, as analyzed by the PCM method described in 453 CMR 6.00, does not exceed 0.010 fibers per cubic centimeter of sampled air (f/cc), the removal shall be considered complete and the containment area dismantled.
- F. If the concentration of any of the air samples taken inside the work area exceeds 0.010 f/cc, then the Asbestos Abatement SubCONTRACTOR shall re-clean the work area and final air clearance testing shall be repeated. All costs associated with the collection and analysis of repeat air clearance samples due to elevated clearance fiber levels shall be paid for by the CONTRACTOR.
- G. The Asbestos Abatement SubCONTRACTOR shall not start containment dismantling operations until the Asbestos Abatement SubCONTRACTOR has received written approval from City of Waltham's Asbestos Monitor.

3.13 FINAL INSPECTION AND TESTING

- A. After thorough cleaning and removal of all asbestos waste and CONTRACTOR's materials, tools and equipment, the Asbestos Abatement SubCONTRACTOR's Asbestos Supervisor shall perform an initial inspection of the work area to determine if it is ready for a final visual inspection by City of Waltham's Asbestos Monitor. Once the Asbestos Abatement SubCONTRACTOR has determined that the containment or regulated work area is ready for the final visual inspection, City of Waltham's Asbestos Monitor shall be notified no less than 24 hours in advance to schedule and perform the required final inspection and final clearance air testing. City of Waltham's Asbestos Monitor will visually inspect the workspace for the detection of any visible debris, dust, residue or contamination. The visual inspection shall be performed prior to applying lockdown encapsulation to surfaces. All surfaces shall be dry to beginning the visual inspection.
- B. Following a successful visual inspection of the work area the Asbestos Abatement SubCONTRACTOR shall encapsulate all surfaces within the work area. Following encapsulation of the work area and after a sufficient period of time has elapsed to allow complete drying of the work area, the final clearance air sampling will be performed by City of Waltham's Asbestos Monitor.
- C. The final testing shall take place under active agitation of the air in the workspace with fans running, leaf blowers operating and any other means found suitable by City of Waltham's Asbestos Monitor during the final testing. Fans, leaf blowers and extension cords necessary for final clearance air testing shall be provided by the CONTRACTOR and the CONTRACTOR shall cooperate with and assist City of Waltham's Asbestos Monitor. The analysis of all samples collected shall demonstrate that fiber levels do not exceed 0.010 f/cc by PCM.
- D. After the specified post-abatement levels have been confirmed through the final testing specified herein, the plastic enclosure shall be removed, the exposed surfaces thoroughly wet cleaned and/or HEPA vacuumed, and the plastic, tape, material from equipment room and shower room bagged and disposed of as asbestos waste. A final check will be carried out by City of Waltham's Asbestos Monitor to ensure that no dust or debris remain on surfaces as the result of asbestos removal and related activities and containment dismantling operations. Critical barriers, HEPA exhaust units and decontamination facilities shall remain in place until all final cleaning and clean-up operations have been completed and all other containment dismantling has been completed.

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- E. After achieving the level of cleanliness and decontamination as specified herein and as confirmed by the final testing and checking, the City of Waltham's Asbestos Monitor will thoroughly inspect the work areas jointly with the Asbestos Abatement SubCONTRACTOR to determine whether any damage has been done to any building component, finish, equipment or any other part of the work space or property that will not be subsequently demolished or have been specifically designated for salvage. A final inspection report shall be prepared jointly between City of Waltham's Asbestos Monitor and the CONTRACTOR detailing the list of items to be fixed by the CONTRACTOR.

END OF SECTION

Asbestos-Containing Materials Inventory

GREENE BUILDING		
Material Description	Material Location	Estimated Quantity
2'x2' pinhole cementitious ceiling tile	Pool Room	2,500 SF
Pipe insulation/elbows/tees & residual asbestos debris on piping (exposed, behind walls, & in crawlspaces)	Pool Room, Throughout Building	2,000 LF
Beige mottled floor tile and associated black mastic	Room G04, G05B,C	1,500 SF
Grey 9"x9" floor tile and associated black mastic	G-07	2,700 SF
Beige/ w/ black streak 9"x9" floor tile	G-07	300 SF
Tan pebble linoleum	108, 115B, 120B, 120A, 136, 166B, G07	3,200 SF
Green linoleum	G-07	50 SF
Black pipe flange gasketing	Mechanical Rooms	150 Units
Transite panels/wiring	1 st Floor Elevator Pump Room	50 SF
Exterior brown and beige vent caulk	Exterior	11 Vents
KELLY BUILDING		
Material Description	Material Location	Estimated Quantity
Interior window glazing	Throughout Building	240 Windows
Pipe insulation/elbows/tees and debris	Throughout Building	2,000 LF
9"x9" grey floor tile	Middle Stairwell, Chemical Storage, Copy Room, Boys Locker Room	4,000 SF
White skim coat on concrete ceilings/columns	Throughout Building	27,000 SF
Door caulk	Exterior	6 doors
SHRIVER BUILDING		
Material Description	Material Location	Estimated Quantity
BASEMENT		
Caulking Around Elevator	Elevator Doors	25 LF
Black Paper / Mastic on Fiber Glass HVAC Insulation	Throughout Basement	4,000 LF
Generator Exhaust Insulation	Throughout Basement and Chimney to Roof	350 SF
Black and White 12"x12" Floor Tile and Associated Mastic	Basement Lavatory	20 SF
Transite Paneling Associated With Elevator Equipment Panels	Elevator Equipment Rooms	200 SF
Transite / Paper / Electrical Wiring Insulation In Electrical Switchboxes/Switchgear	Throughout Basement	12 Units
1ST FLOOR		
Transite Fume Hood	Rms. 117 and 128	130 SF
Transite Lab Top	Throughout First Floor	1,200 SF
12"x12" Floor Tile and Associated Black Mastic	Throughout First Floor	8,000 SF

2'x4' Lengthwise Fissure Ceiling Tile	Throughout First Floor	6,250 SF
Fire Door Insulation	Throughout First Floor	20 Doors
Carpet Mastic	Throughout First Floor	1,760 SF
Caulking Around Elevator	At Elevator Doors	25 LF
White/Pinkish Sink Undercoating	Room 117	3 Sinks
Textured Paint on Concrete	Room 123	30 SF
Wood Wall Panel Mastic	By Front Elevator	100 SF
2ND FLOOR		
Transite Fume Hood	Rms. 207, 207A, 209	80 SF
12"x12" Floor Tile and Associated Black Mastic	Throughout Second Floor	8,000 SF
2'x4' Lengthwise Fissure Ceiling Tile	Throughout Second Floor	7,450 SF
Fire Door Insulation	Throughout Second Floor	20 Doors
Carpet Mastic	Throughout Second Floor	1,845 SF
Black Sink Undercoating	Throughout Second Floor	8 Sinks
Caulking Around Elevator	At Elevator Doors	25 LF
Residual Floor Tile Mastic	Throughout Second Floor excluding Halls and Bathrooms	1,500 SF
3RD FLOOR		
Transite Fume Hood	Throughout Third Floor	960 SF
Transite Lab Top	Throughout Third Floor	3,000 SF
Transite Fume Exhaust Pipe	Above Ceilings Third Floor	400 LF
12"x12" Floor Tile and Associated Black Mastic	Throughout Third Floor	8,000 SF
2'x4' Lengthwise Fissure Ceiling Tile	Throughout Third Floor	9,150 SF
Fire Door Insulation	Throughout Third Floor	20 Doors
Carpet Mastic	Room 305 (over ACM Floor Tile and Mastic)	200 SF
Caulking Around Elevator	At Elevator Doors	25 LF
Green Linoleum Mastic	Cold Storage	200 SF
4TH FLOOR		
Transite Fume Exhaust Pipe	Above Ceilings Fourth Floor	400 SF
Caulking Around Elevator	At Elevator Doors	25 LF
Residual Floor Tile Mastic	Throughout Fourth Floor excluding Halls and Bathrooms	500 SF
Brown Caulk at Roof Deck	Throughout Fourth Floor	250 SF
Textured Concrete	Throughout Fourth Floor	1,500 SF
EXTERIOR		
Transite Window Panels	Throughout Staircase	650 SF
Red Duct Sealant	Upper Roof	30 LF
CERC BUILDING		
Material Description	Material Location	Estimated Quantity
BASEMENT		
Water Tank Insulation	At Steam Pipe Entry	110 SF
Mudded Fitting on Fiberglass Pipe Insulation	Throughout Building	500 Units
Flex Connectors	Throughout Building	20 Units
12"x12" Beige Mottled Floor Tile	Rooms 041, 041A	450 SF
Black Sink Undercoat	Room 041A	2 Sinks

Material Description	Material Location	Estimated Quantity
1ST FLOOR		
9”X9” Tan Floor Tile and Associated Black Mastic	Rooms C149, C118A, C150, C151, C105, C104, C103, C102, C123A, C168, C162, C153, C154, C140, C141, C111, C137, C109, C135, C109, C133, C107, C107A, C130, C127, C106A, C105A, C104A, C125, C115, C122	4,500 SF
9”x9” Grey Streak Floor Tile and Associated Black Mastic	Rooms C116A, C116B, C146, C106, C151, C171, C155, C156, C157, C143	2,500 SF
9”X9” Brown Floor Tile and Associated Mastic	Rooms C101, C122A, C166, C167, C169, C165, C158A, C125A	1,700 SF
9”X9” White Floor Tile and Associated Mastic	Rooms C172, C173, C110, C108, C145A, C128, C128A, C126, C114	2,000 SF
9”X9” Blue Streak Floor Tile and Associated Mastic	Room C123	400 SF
Residual Black Floor Tile Mastic	Rooms C145, C121B, C120	500 SF
Grey Window Glazing; White Window Frame Caulk	Throughout 1st Floor	140 SF
Pipe Fitting Insulation	Room C154	4 Units
EXTERIOR		
Transite at Windows in Tunnel	Connecting Corridor to Shriver Building	400 SF
Base Flashing Roof Tars/ Felts	Roof and Connecting Corridor Roof to Shriver Building	40 SF
Perimeter Flashing Tars / Felts	Roof and Connecting Corridor Roof to Shriver Building	120 SF

SF – square feet

LF – linear feet

SECTION 025110
CONCRETE AND MASONRY DEMOLITION

PART 1- GENERAL

1.1 **GENERAL PROVISIONS**

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION I – GENERAL REQUIREMENTS, which are hereby made a part of this Section of Specifications.
- B. Where in the performance of the work, workers, supervisory personnel, Subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of PCB-containing materials, where appropriate, continuous measures as necessary to protect the public and the environment from the hazard of exposure shall be taken. Such measures shall include the procedures and methods described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA), including the US EPA's PCB Bulk Product Waste Re-interpretation dated October 24, 2012.

1.2 **DESCRIPTION OF WORK**

- A. This Specification Section addresses requirements for the removal of interior and exterior concrete masonry units (CMU), concrete masonry units that form the backup walls to the exterior brick, exterior brick, that are classified as PCB Bulk Product Waste.
- B. Transportation and lawful disposal of concrete and masonry that contains PCB concentrations greater than fifty milligrams per kilogram. This material will be considered PCB Bulk Product Waste and managed in accordance with 40 CFR 761. Masonry (CMU and brick) materials, metal channels, ties, conduit, piping, switches, fiberglass insulation, and other porous and non-porous materials, shall be considered PCB Bulk Product Waste and shall be removed and disposed accordingly by the Contractor. Prior to removal, CMU and brick materials classified as PCB Bulk Product Waste shall be fully and completely marked with a bright marking paint. Metal ties and rebar within the PCB Bulk Product Waste removal zone shall also be marked with a bright-colored paint and disposed by the Contractor as PCB Bulk Product Waste.
- C. The Contractor shall remove and dispose of the entire brick façade(s) of the Kelly, CERC, and Shriver buildings and dispose of the material as PCB Bulk Product Waste. All CMU associated with the CERC building shall be considered PCB Bulk Product Waste and shall be disposed as such. Columns floor/wall/ceiling slabs in contact with PCB-containing caulk at the CERC and Shriver buildings shall be classified as PCB Bulk Product Waste and shall be disposed at an appropriately permitted disposal facility in accordance with the Performance Based Disposal provisions of 40 CFR 761. Concrete pieces shall be removed in sections that are as large as possible to comply with the disposal facility requirements.

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- D. The Contractor shall develop and implement means and methods to address preparation, painting/marketing of surfaces of PCB Bulk Product Waste, removal, segregation, and movement of the waste streams to temporary waste storage areas or disposal transport containers. The requirements specified herein provide the framework within which the Contractor must comply. All masonry in-fill panels and PCB Bulk Product Waste portions of concrete members must be demolished by having the masonry and concrete fall within the buildings.
- E. Prior to demolition of infill panel masonry, the Contractor shall fully and completely paint, with a bright-colored paint, portions of masonry infill panels adjacent to former caulk locations, which is classified as PCB Bulk Product Waste. The Contractor shall also mark, with a bright marking paint, the interior and exterior concrete walls, ceilings and floor slabs, which are classified as PCB Bulk Product Waste. The painted concrete and masonry shall be separated from concrete, brick, and CMU that are not classified as PCB bulk product waste by means and methods selected by the Contractor. The Contractor shall then segregate the painted concrete and masonry from the unpainted concrete and masonry. The painted concrete and masonry shall be managed as PCB Bulk Product Waste. Metal ties and rebar encountered during concrete PCB Bulk Product Waste removal activities shall be marked with a bright-colored paint, segregated during building demolition activities, and disposed by the Contractor as PCB Bulk Product Waste.
- F. The CONTRACTOR shall provide all labor, materials, tools, equipment, services and incidentals which are necessary or required to perform the work of this section in accordance with all applicable governmental regulations, industry standards and codes and these Specifications. The work of this Section, includes, but is not limited to the following:
1. Selection of means and methods to perform the outlined procedures.
 2. See Section 028100 – MANAGEMENT AND DISPOSAL OF WASTE STREAMS for segregation and disposal requirements.
- G. Related Work: The following items are not included in this Section and will be performed under the Designated Sections:
1. Section 015000: TEMPORARY FACILITIES.
 2. Section 024200: SELECTIVE DEMOLITION
 3. Section 024000: BUILDING AND ANCILLARY STRUCTURES DEMOLITION
 4. Section 028100: MANAGEMENT AND DISPOSAL OF WASTE STREAMS
 5. Section 028433: REMOVAL OF PCB CONTAINING CAULK MATERIALS

1.3 WORK BY CITY OF WALTHAM'S ENVIRONMENTAL CONSULTANT

- A. The City of Waltham will provide an Environmental Consultant to monitor the activities of the Contractor. No activity shall be performed until the Environmental Consultant is on-site. Environmental sampling, including ambient air sampling shall be conducted by the Environmental Consultant throughout the project as deemed necessary.

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- B. The Environmental Consultant will perform ambient air monitoring to assess the effectiveness of dust suppression measures.
- C. The Environmental Consultant will collect confirmatory bulk samples, as necessary to validate classification of material as PCB Waste or “clean” material.
- D. The Environmental Consultant will inspect work site for conformance with Work Plan and Project Specifications as they relate to environmental matters.

1.4 SCHEDULE AND SEQUENCING

- A. The CONTRACTOR shall prepare a schedule and sequencing plan for PCB remediation activities for review by the City of Waltham and the Consultant.

1.5 SECTION INCLUDES

- A. Regulatory Requirements
- B. Submittals
- C. Products
- D. Examination
- E. Employee Protection
- F. Establishment of Regulated Work Area
- G. General Requirements
- H. Waste Management

1.6 REGULATORY REQUIREMENTS

- A. The Work of this Section shall be performed in accordance with all applicable Federal, State, and local regulations, laws, codes, approvals and ordinances governing the handling and management of contaminated materials, demolition debris, and solid waste.
- B. The Contractor shall adhere to all permit requirements and shall comply with the requirements of the U.S.E.P.A. during all work.

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1.7 SUBMITTALS

- A. The Contractor shall submit each item in this Article according to the Conditions of the Contract.
- B. Material Safety Data Sheets (MSDS) for wetting agents and paint proposed to identify PCB-Bulk Product Waste, shall be provided to the Designer as part of the PCB Removal and On-Site Management Work Plan.
- C. Product data, catalog sheets, specifications, and application instructions for any products used.
- D. Other project-wide submittals are identified and specified in Sections 028100.

PART 2- PRODUCTS

2.1 GENERAL

- A. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with the operation of others at the Site or with employees' access and safety. The storage area(s) shall be proposed by the Contractor and approved by the Designer.
- B. All materials shall be delivered to the Site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description. No damaged or deteriorating materials shall be used.
- C. Damaged or deteriorated materials shall not be used and shall be promptly removed from the Site.
- D. All materials and equipment shall comply, at a minimum, with all sections of these specifications, applicable federal and state regulations and policies.

2.2 MATERIALS

- A. Waste containers shall be suitable for loading, temporary storage, transport and unloading of PCB Bulk Product Waste without risk of ripping, rupture, or exposure to persons or emissions to the environment. Waste containers shall be pre-lined and suitable for transportation in conformance with all applicable Federal and state required laws, regulations, and policies. Waste Containers shall conform to the requirements of 40 CFR 761.65(c)(6).
- B. Waste containers shall be suitable for loading, temporary storage, transport and unloading of concrete and masonry that is not classified as PCB Bulk Product Waste without risk of ripping and/or rupture.
- C. Wetting agent or surfactant: shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and non-carcinogenic. It shall be applied as a mist using a low-pressure garden sprayer recommended by the surfactant manufacturer.
- D. Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating ten (10) mil thickness. Ten (10) mil polyethylene sheets shall be reinforced.
- E. Six (6) mil polyethylene disposable bags.
- F. Tape (or equivalent) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.
- G. Preprinted warning signs and labels shall conform with all federal, state, and local codes and regulations. Labeling for Waste Containers shall conform to 40CFR § 761.40 and § 761.45.

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- H. All forms shall conform to the applicable requirements specified by the appropriate regulation.
- I. Any planking, bracing, shoring, and barricades necessary to appropriately perform work activities shall conform to all applicable federal, state and local regulations.
- J. A sufficient supply of disposable mops, rags, and sponges for work area decontamination shall be available.

2.3 SAFETY SUPPLIES AND EQUIPMENT

- A. All workers shall be provided with suitable personal protection equipment as specified in the Contractor's Health and Safety Plan. This equipment shall include disposable coveralls, head protection, foot coverings, gloves, and eye protection. Minimum respiratory protection shall be compliant with current OSHA regulations.
- B. Air monitoring equipment of the type and quantity required to monitor operations and conduct personnel exposure surveillance in accordance with OSHA requirements.

2.4 TOOLS AND EQUIPMENT

- A. The Contractor shall provide tools and equipment that are suitable for preparing the masonry panel, marking the PCB Bulk Product Waste areas of the masonry and concrete, demolition and segregation of the assorted waste streams, including but limited to:
 - 1. Electrical equipment, protective devices and power cables shall conform to all applicable codes.
 - 2. Low-pressure garden sprayer sprayers, in sufficient quantity and suitable for application of wetting agent/surfactant, shall be used.
 - 3. Ladders, man-lifts, scissor lifts, and/or scaffolds of adequate length, strength and sufficient quantity to support the work schedule. Scaffolds shall be equipped with safety rails and kick boards in compliance with OSHA requirements.
 - 4. Grinders, sanders, chipping hammers, and other mechanical equipment selected by the Contractor necessary to detach masonry panels from surrounding concrete and to separate PCB Bulk Product Waste concrete and masonry from the remainder of the "ABC" material. This equipment shall be equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only.
 - 5. All vacuum equipment used in the work area shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size. All vacuums shall be delivered to the work area with clean waste containers and intact, undamaged HEPA filters installed.
 - 6. Conveyance equipment shall be suitable for on-site movement of the segregated masonry

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debris to on-site temporary storage area(s) proposed by the Contractor and approved by the Designer. The conveyance method shall minimize exposure to persons or property. The conveyance equipment shall be secured at all times and access restricted to unauthorized personnel.

PART 3- EXECUTION

3.1 **EXAMINATION**

- A. Survey existing conditions to evaluate the stability of the interior and exterior masonry walls and PCB Bulk Product Waste concrete and to develop appropriate means and methods to access and safely remove these materials.
- B. Perform a visual survey of each work area and review conditions at the Site for safety reasons
- C. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure.

3.2 **EMPLOYEE PROTECTION**

- A. The Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project
- B. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA and USEPA standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.
- C. All employees of the Contractor who perform work removing interior and exterior masonry panels and concrete shall be properly trained to perform such duties.
- D. Posting of regulations: Display the following documents in the clean changing area, in public view, for the full duration of the work:
 - 1. Instructions for removing injured persons from work area.
 - 2. Post emergency action plan at the work site. This plan shall also include telephone numbers for the local trauma hospital and Fire Company.

3.3 **ESTABLISHMENT OF REGULATED WORK AREAS**

- A. The Contractor shall establish a Regulated Area through the use of appropriate barrier tape, etc. and control unauthorized access into the area throughout the demolition activity in accordance with the following requirements.
- B. The Regulated Area shall include exterior areas within possible fall zones.
- C. The Contractor shall install 10-mil reinforced fire retardant polyethylene drop cloths on floors and at the perimeter of the Site buildings to collect debris from demolition operations. The interior floor protection shall extend out 10 feet in all directions from operations at 20-feet in all directions for exterior operations.

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- D. Signs shall be posted at all approaches to regulated areas so that an employee may read the sign and take the necessary protective steps before entering the area. These signs shall read:

CAUTION
PCB WORK AREA
HUMAN AND ENVIRONMENTAL TOXIN
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

- E. Implement appropriate engineering controls such as critical barriers, poly drop cloths, negative pressure, local exhaust ventilation, wet dust suppression methods, etc. to prevent the spread of PCB contamination from the Regulated Area.

3.4 GENERAL REQUIREMENTS

- A. The Contractor shall:

1. Shut down and lock out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
2. Coordinate all power and fire alarm isolation with the appropriate representatives.
3. When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.
4. Conduct concrete and masonry demolition and segregation operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
5. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways during exterior masonry removal, where required by the Designer.
6. Protect existing site improvements and appurtenances to remain.
7. Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of wall components as required.
8. Strengthen or add new supports when required during progress of selective demolition.

- B. Ladders and/or scaffolds to be utilized throughout this project shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

- C. Work performed at heights exceeding six feet (6') shall be performed in accordance with the

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OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

- D. Activity impacting wall panel removal shall be performed in a manner which minimizes the spread of dust contamination and generation of airborne PCB.

3.5 WASTE MANAGEMENT

- A. Sealed PCB Bulk Product Waste containers shall be moved to the temporary hazardous waste storage area(s), or loaded out into lined dumpsters that conform to all federal, state, and local laws and regulations governing the storage and transport of TSCA and PCB waste.
- B. Conveyance equipment shall be suitable for on-site movement of the masonry and concrete debris to the on-site temporary storage area(s). The conveyance method shall minimize exposure to persons or property. The conveyance equipment shall be secured at all times and access restricted to unauthorized personnel.
- C. All waste containers shall indicate the date of generation. Dumpsters that house TSCA or PCB waste must meet all applicable federal, state and local laws and regulations, and must be secured and lined. Open top containers are discouraged, but if they are used, they must be properly secured to prevent rain and/or snow from entering the container during storage and loading. The contractor must indicate in the Work Plan how he will manage this requirement. The containers must be properly labeled and secured at all times to prevent access by unauthorized personnel.
- E. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- F. Remove debris from elevated portions of the buildings by hoist, elevator, or other device that will convey debris to grade level.

3.6 RESTORATION

- A. Contaminated conditions shall be cleaned up immediately.

END OF SECTION

SECTION 026000

MISCELLANEOUS HAZARDOUS MATERIALS REMOVAL

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.
- B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article III, Paragraph 1 of the CONTRACT AND GENERAL CONDITIONS.

1.2 DESCRIPTION OF THE WORK

- A. The CONTRACTOR shall provide labor, materials, and equipment to complete the work specified in this Section including, but not limited to, the removal and lawful disposal of hazardous materials, hazardous wastes, and special wastes. Generally, the management of miscellaneous hazardous materials shall include, but not be limited to:
 - 1. Characterization (any testing that may be required by a disposal facility), removal, and disposal of hazardous materials or potentially hazardous materials.
 - 2. Characterization (any testing that may be required by a disposal facility), removal, and disposal of fluorescent light ballasts, capacitors, and transformers throughout all site buildings and structures to be demolished
 - 3. Characterization (any testing that may be required by a disposal facility), removal, and disposal of building systems fluids, containerized wastes, contained gear oils, hydraulic oils and refrigeration liquids, etc. from various pieces of machinery and equipment, throughout all site buildings and structures to be demolished.
 - 4. Characterization (any testing that may be required by a disposal facility), removal, and disposal of all containers, drums, and unknown materials throughout all site buildings and structures to be demolished.
 - 5. Characterization (any testing that may be required by a disposal facility), removal, and disposal of loose paint chips and flaking and peeling paint from walls and floors throughout all site buildings and structures to be demolished.

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6. 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.
 7. Perform all sampling and testing required to properly profile the material for waste disposal. This shall also include all testing required by the disposal or recycling facility.
 8. All costs for the testing shall be borne by the CONTRACTOR.
 9. Comply with the CONTRACTOR's submitted Health and Safety Plan.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
1. Section 017418 – DEMOLITION WASTE MANAGEMENT AND DISPOSAL
 2. Section 024100 – BUILDING AND ANCILLARY STRUCTURES DEMOLITION
 3. Section 024110 – REMOVAL AND DISPOSAL OF FUEL STORAGE TANKS
 4. Section 025000 – ASBESTOS ABATEMENT AND RELATED WORK
- C. Refer also to the attached hazardous materials inventory for information related to hazardous materials that are/may be present and require removal prior to demolition.

1.3 SCHEDULING AND SEQUENCING

- A. The CONTRACTOR and the Consultant shall develop a hazardous materials removal schedule for each phase of the work at the Pre-Construction Conference. The Consultant or the City of Waltham may choose to alter the work sequence as they see fit.
- B. The CONTRACTOR shall update the schedule and submit any schedule changes for review by the Consultant at the weekly construction meetings.

1.4 LOCATION OF WORK

- A. Location of work areas, descriptions, estimated types and quantities of hazardous materials are described in the HAZARDOUS WASTE SCHEDULE appended hereto. If additional hazardous materials are encountered, the CONTRACTOR shall notify City of Waltham immediately and be prepared to remediate the material.
- B. The HAZARDOUS WASTE SCHEDULE identifies hazardous materials encountered and enumerated during the survey. The quantities are provided for general guidance and may not correspond exactly to the quantity to be removed. The CONTRACTOR is responsible to investigate all structures for the presence of all hazardous materials. The CONTRACTOR shall determine quantities of hazardous materials for bidding purposes. Not all hazardous materials, building systems fluids and containerized wastes are

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included in the Hazardous Materials Inventory Table. The Contractor is responsible for field verification, removal, and proper disposal of all items prior to building demolition.

- C. Handling, containerizing, packaging, re-handling, hauling and disposal of all items identified are to be included in the lump sum bid item of the Contract.

1.5 REFERENCES

- A. The CONTRACTOR is advised to thoroughly review the documents referenced in this Section. Strict adherence to the hazardous materials, noise, air and water pollution regulations and requirements is required.

- 1. Code of Federal Regulations
 - a. 29 CFR 1910, "Occupational Safety and Health Standards"
(General Industry Standards)
 - b. 29 CFR 1910.20, "Access to Employee Exposure and Medical Records"
 - c. 29 CFR 1910.134, "Respiratory Protection"
 - d. 29 CFR 1910.146 "Permit Required Confined Space"
 - e. 29 CFR 1910.1025 "Lead"
 - f. 29 CFR 1910.1200, "Hazard Communication"
 - g. 29 CFR 1926, "Safety and Health Regulations for Construction"
(Construction Industry Standards)
 - h. 29 CFR 1926.62, "Lead-Construction"
 - i. 40 CFR 50, "National Primary and Secondary Ambient Air Quality Standards"
 - j. 40 CFR 60, "Standards of Performance for New Stationary Sources,"
Appendix B, "Test Methods"
 - k. 40 CFR 117, "Determination of Reportable Quantities for Hazardous Substances"
 - l. 40 CFR 122, "EPA Administered Permit Program: The National Pollutant Discharge Elimination System"
 - m. 40 CFR 172, "Hazardous Waste Transportation"
 - n. 40 CFR 261, "Identification and Listing of Hazardous Waste"

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- o. 40 CFR 262, “Standards Applicable to Generators of Hazardous Waste”
 - p. 40 CFR 263, “Standards Applicable to Transporters of Hazardous Waste”
 - q. 40 CFR 268, “Land Disposal Restrictions”
 - r. 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan”
 - s. 40 CFR 302, “Designation, Reportable Quantities, and Notification”
- 2. Occupational Safety and Health Administration OSHA Booklet 3126 “Working with Lead in the Construction Industry”
 - 3. National Institute for Occupational Health and Safety
 - a. NIOSH Method 7082, “Lead”
 - 4. American Society for Testing and Materials
 - a. ASTM D3335, “Test Method for Low Concentration for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy”
 - 5. EPA (Environmental Protection Agency) Publications
 - a. SW-846, “Test Methods for Evaluating Solid Waste – Physical/Chemical Methods”
 - b. EPA Method 3050, “Acid Digestion of Sediments, Sludges, and Soils”
 - 6. Steel Structures Painting Council
 - a. SSPC Guide 61 (CON) Guide for Containing Debris Generated During Paint Removal Operations
 - b. SSPC Guide 71 (DIS) Guide for the Disposal of Lead Contaminated Surface Preparation Debris
 - 7. Commonwealth of Massachusetts Department of Environmental Protection
 - a. 310 CMR 40 Massachusetts Contingency Plan
 - b. 310 CMR 30 Hazardous Waste Regulations
 - c. 310 CMR 1-7 Clean Water Act
 - d. 310 CMR 16, 19 Solid Waste Regulations

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- e. 314 CMR 7-8 Clean Air Act
- 8. Other
 - a. 454 CMR 10-23 Division of Industrial Safety

1.6 SUBMITTALS

- A. The CONTRACTOR shall submit each item in this Article according to the Conditions of the Contract, for information only, unless otherwise indicated.
- B. The CONTRACTOR shall submit a Waste Management Plan for review by the Consultant and City of Waltham. The Plan shall include identification of the proposed waste hauler and disposal facility with copies of all applicable licenses, registrations and approvals.
- C. The CONTRACTOR shall provide copies of all worker certifications associated with OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.
- D. The CONTRACTOR shall provide City of Waltham with all required documentation relating to the proper removal and disposal of any hazardous or regulated waste that leaves the site in accordance with the Waste Management Plan.
- E. After completion of the hazardous materials removal, provide a final report documenting removal, transportation and disposal activities. The document shall include copies of manifests, shipping slips, permits, and licenses for this Project.

1.7 QUALITY ASSURANCE

- A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for hazardous waste identification, handling, removal, and disposal requirements and provisions for new work.
- B. Hazardous Waste Removal and Transportation Firm Qualifications: An experienced firm that has specialized in hazardous waste work similar in material and extent to that indicated for this Project.
- C. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- D. Regulatory Requirements: Comply with governing EPA and DEP notification regulations before beginning removing any hazardous waste materials. Comply with hauling and disposal regulations of authorities having jurisdiction

PART 2 – MATERIALS

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2.1 PROTECTIVE EQUIPMENT

- A. Provide health and safety equipment required to protect workers and to comply with the Health and Safety Plan.

2.2 DISPOSAL BAGS

- A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags.

2.3 DRUMS

- A. DOT Hazardous Waste Disposal Drums: Provide DOT 17-H Open -Top Drums (55 gallon) in accordance with DOT regulations title 49 CFR Parts 173, 178, and 179.

2.4 LABELS

- A. DOT Hazardous Waste Labels: in accordance with DOT regulations, Title 49 CFR parts 173, 178, and 179.

PART 3 – EXECUTION

3.1 GENERAL WORK AREA SET UP

- A. Signage: Prior to the preparation for work that will disturb hazardous materials, the Contractor shall place warning signs immediately outside all entrances and exits to the area.
- B. Access to Work Areas: The Contractor shall allow only authorized personnel into the work area. Barrier tape shall be used to limit access to the exterior work area.

3.2 GENERAL HAZARDOUS WASTE MANAGEMENT

- A. Do not mix potentially hazardous waste streams. Where feasible, separate each type of hazardous waste from other types of hazardous wastes, from asbestos waste and from construction waste.
- B. Segregate, package, label, transport and dispose of Hazardous Waste in accordance with DOT, EPA, State and Local regulations.
- C. The Consultant shall identify materials considered to be hazardous wastes based on TCLP testing of components completed by the Consultant prior to initiating this project. A schedule of materials that must be managed as hazardous waste is attached in Table 2.
- D. The following wastes are designated as Hazardous Wastes and are non-salvageable:

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1. Waste Type A PCB waste to include PCB-containing ballasts from fluorescent light fixtures.
 2. Waste Type B Mercury-containing waste to include thermostats and temperature gages with mercury switches, fluorescent, and mercury-vapor lamps.
 3. Waste Type C lead base paint debris to include containers of paint and paint chips/debris.
 4. Waste Type D characteristically hazardous metal containing waste to include soot, ash and debris inside the boilers.
 5. Waste Type E HVAC and refrigerator refrigerant.
- E. In the event of an apparent conflict between the requirements of these specifications and the requirements of the Massachusetts Hazardous Waste Regulations (310 CMIR 30.000) the CONTRACTOR shall bring the apparent conflict to the attention of the Consultant for resolution. The CONTRACTOR shall not seek to review the apparent conflict with other parties prior to resolution with the Consultant.

3.3 HAZARDOUS WASTE PACKAGING AND LABELING

- A. Package each segregated Hazardous Waste Type A, B, C, D and E in separate specified containers as follows. **IMPORTANT: Do Not Mix Waste Streams:**
1. Waste Type A to be packaged in DOT 17-H open-top drums. Fill to capacity only with Waste Type A (Do Not Mix Waste Stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Waste Polychlorinated Biphenyls, 9, UN-2315, PG-II, (M001). Adjacent to each label, enter the date indicating when waste was first placed in each drum.
 2. Waste Type B to be packaged in DOT 17-H open-top drums with polyethylene disposal Bag liners. Fill liner bags only with Waste Type B (do not mix waste stream types). After full, neck liner bags down into DOT 17-H open-top drum and seal with duct tape. Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3077, PG-III, (D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.
 3. Waste Type C to be packaged in DOT 17-H Open-Top Drums. Fill to capacity only with Waste Type C (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3 077, PG-III, (~D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

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4. Waste Type D to be packaged in DOT 17-H open-top drums. Fill to capacity only with Waste Type D (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3077, PG-III, (D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.
 5. For Waste Type E, HVAC, cooling system fluids, and refrigerator refrigerant shall be reclaimed for recycling from each unit by an EPA licensed contractor. The refrigerant shall be reclaimed using evacuation gas containers and submitted for recycling in accordance with the EPA Clean Air Act, Stratospheric Ozone Protection Regulations.
- B. Maintain all containers in a continuously sealed condition after they have been filled. Do not reopen sealed containers or place additional waste in previously sealed containers.

3.4 LIGHT BALLASTS

- A. Light ballasts requiring removal were observed throughout the Site.
- B. Remove, characterize and lawfully dispose to an appropriate off-site PCB disposal facility all PCB and non-PCB light ballasts throughout the facility. In preparing his/her bid, the CONTRACTOR shall assume all light ballasts contain PCBs.
- C. Document all disposal activities to insure compliance with regulations. City of Waltham shall not pay for disposal until complete documentation of lawful disposal is received by City of Waltham.
- D. All light ballasts shall be removed by properly trained personnel in accordance with local, state, and federal regulations and all material shall be disposed of (i.e. recycled) by a disposal contractor who possesses at least one (1) year experience in the "Lighting Waste Recycling Industry".

3.5 MERCURY

- A. Under current federal regulations, items containing mercury may be classified as hazardous waste. These include, but are not limited to fluorescent lamps, high-intensity discharge lamps, manometer thermostats and relay switches. The following shall be followed for disposal of all mercury items:
 1. Collection, characterization and proper disposal of all fluorescent tubes and mercury items found throughout the facility.
 2. Care must be taken to not break these items, as that may cause mercury exposure to individuals handling them and may require additional clean-up and decontamination.

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3. All materials leaving the site shall become the property of CONTRACTOR.
4. Provide all waste shipment records or recycling records and incorporate in the final report.

3.6 HAZARDOUS MATERIALS/CONTAINERIZED WASTE

- A. All hazardous materials shall be characterized and disposed of in accordance with applicable regulations. Disposal manifests shall be provided for all waste disposal.
- B. Workers who handle hazardous materials shall be licensed and trained in safe and proper hazardous materials handling procedures. At a minimum, this shall include OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.
- C. Any hazardous materials containers in poor condition shall be removed as soon as possible.
- D. Handling Hazardous Waste
 1. Place waste in DOT approved containers and label the containers for transport to a licensed disposal site.
 2. Use an authorized hazardous waste transporter to haul waste to a hazardous waste facility.
 3. Follow all record keeping, chain-of-custody and reporting requirements including a copy of the hazardous waste manifest.
 4. Accurately measure and weigh the volume of each container or load of waste removed from the site. Submit records of waste volumes to City of Waltham and the Consultant.
 5. Special attention shall be given to the time of storage, amount of material stored at any one time, use of proper containers and personnel training.
 6. Paint debris shall not be placed on the unprotected ground and shall be shielded to prevent dispersion of the debris by wind or precipitation.
 7. Provide appropriate notifications to regulatory agencies if there is a release to the environment exceeding the CERCLA reporting requirements (e.g. lead - 1 pound).
 8. Any evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken.
 9. Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, landfill slips, or other forms. Copies of all

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forms or licenses, and the signed original of the Waste Manifest for each waste load, shall be given to the Consultant and City of Waltham.

3.7 LEAD-BASED PAINT

- A. Lead-based paint is present on many surfaces throughout the Site. The CONTRACTOR shall assume that all painted surfaces contain lead-based paint. Any of the CONTRACTOR activities that may generate leaded dust or impact a leaded surface shall be responsible for regulating his work area so that dust migration is contained properly within the regulated area. Once the work is complete, the CONTRACTOR shall be responsible for the proper clean up and disposal of leaded dust and materials.
- B. All lead based paint work must be reflected in the lump sum bid of this contract.
- C. Work Areas Affected - In general, the following activities are minimum requirements of this Section and affect the demolition performed on the painted components:
 - 1. No torch cutting, mechanical sanding or stripping or abrasive methods shall occur on painted surfaces without the use of HEPA vacuum attachments.
 - 2. No demolition activities may occur that increase the workers' exposure above the Action Level of $30 \mu\text{g}/\text{m}^3$. CONTRACTOR shall fully comply with the OSHA lead standard at 29 CFR 1926.62.
 - 3. Workers shall be informed of the components to be demolished that have been identified as containing lead.
 - 4. Worker protection, at a minimum, shall comply with the OSHA Lead Standard 29 CFR 1926.62. Worker Right to Know and Health and Safety Standards of 1926.62 shall also apply to the work of this Section.
 - 5. Separation of Trades: Unprotected, untrained workers or trades shall not perform any related work within the same vicinity as demolition involving components identified as containing lead.
 - 6. Cleanup Activities: The CONTRACTOR shall maintain the demolition work zones free of accumulated debris and materials containing lead.
- G. Disposal of Lead Contaminated Material.
 - 1. The CONTRACTOR must comply fully with SSPC – Guide 71 (DIS) as well as all current regulations concerning the testing, handling, hauling, labeling, and disposal of all lead paint waste generated during this project.
 - a. At a minimum, the CONTRACTOR shall collect and submit samples for Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 in accordance with Appendix II of 40 CFR 261 to a Massachusetts Certified

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Laboratory. The CONTRACTOR shall collect at least four samples from each media scheduled for disposal.

- b. All painted or coated building components shall be disposed of off site, including brick and concrete.
- c. All visible paint and painted debris shall be removed from the ground within and surrounding the work site prior to building demolition. All material shall be properly disposed of off-site.
- d. Lead-containing material that exceeds the TCLP criteria shall be disposed in accordance with applicable hazardous waste regulations.

3.8 REFRIGERANT

- A. Collect and analyze refrigerant samples, as necessary, to identify system gases from all refrigerant-containing vessels and systems. These systems include, but are not limited to, HVAC systems, air conditioners, refrigerators, and water coolers.
- B. Evacuate all refrigerant-containing vessels and systems using a vacuum pump. Furnish and install all necessary valves and fittings required to capture and collect the refrigerant in DOT-approved recovery cylinders or drums. Properly label all recovery cylinders and drums
- C. All activities associated with the removal and reclamation of refrigerant gases shall be in accordance with Section 608 of the Federal Clean Air Acts Amendment of 1991.
- D. After removal of refrigerants, tanks, vessels, piping, white goods, and other items shall be disposed of in accordance with applicable regulations. City of Waltham shall not pay for disposal until complete documentation of lawful disposal is received by City of Waltham.

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3.9 MACHINERY FLUIDS AND POWER PLANT SYSTEMS FLUIDS

- A. Drain all equipment containing hydraulic fluids, lubricating oils, fuel oil, antifreeze, and all other types of fluids. Decontaminate all systems, including piping, by means of steam cleaning or triple rinsing, or both, with a compatible fluid to remove all visible contamination.
- B. Collect and drum all fluids, including decontamination fluids drained from the above described equipment.
- C. Label drums for transport and disposal.
- D. After removal of all hazardous components, dispose of remaining equipment carcasses and piping in accordance with applicable regulations. The CONTRACTOR shall submit documentation verifying removal, transportation, and disposal at the approved disposal facility.
- E. City of Waltham shall not pay for disposal until complete documentation of lawful disposal is received by City of Waltham.

3.10 WHITE GOODS AND OTHER ITEMS

- A. Remove and properly dispose of all environmentally hazardous items and systems components installed in white good item before proper disposal of the unit. This work includes, but is not limited to:
 - 1. Water coolers.
 - 2. Air conditioners.
 - 3. Refrigerators.
- B. White good items which do not contain environmentally hazardous materials, and white good item carcasses from which the CONTRACTOR has removed environmentally hazardous materials prior to removal from the building, shall be removed, transported and disposed of at an approved facility(ies).
- C. City of Waltham shall not pay for disposal until complete documentation of lawful disposal is received by City of Waltham.

3.11 REMOVAL OF TRANSFORMERS

- A. All transformers shall be handled with appropriate personal protective equipment. Unless otherwise noted, the CONTRACTOR, shall assume that all unmarked transformers contain oil with >500 ppm PCBs.

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- B. Prepare each transformer to be electrically disconnected in compliance with the National Electrical Safety Code, the National Electric Code, and OSHA regulations.
- C. Transformers labeled “dry-type” shall be handled and disposed of as white goods, in compliance with 310 CMR 19.017, Waste Control.
- D. Transformers identified as not containing PCBs or labeled “No PCBs” shall be drained, if necessary, and shall be marked with green paint. The fluid shall be placed in properly sealed drums and painted green, and shall be sampled and analyzed by the CONTRACTOR, as required, for transportation and disposal purposes.
- E. Each transformer not positively identified as containing “No PCBs” shall be sampled in place to determine the concentration of PCBs prior to any removal activities, as required for transportation and disposal purposes.
- F. Before sampling transformers, the CONTRACTOR shall take the following preparatory and precautionary measures. These measures shall remain in effect for the duration of the transformer sampling and removal process.
 - 1. Cover and seal all drains, manholes, and other openings that may lead to waterways in such a manner to prevent any migration of the contaminants.
 - 2. Provide temporary containment designed to contain the entire contents of the fluid to be removed. This containment shall encompass the transformer and any areas designated for temporary storage. In addition, absorbents in the amounts adequate to absorb a spill from one complete equipment failure shall be placed within the containment area.
 - 3. Provide adequate spill cleanup equipment within the containment area.
- G. The laboratory proposed by the CONTRACTOR shall be certified for such analyses by the Commonwealth of Massachusetts, and shall be capable of demonstrating skill and experience in similar projects. The laboratory shall forward copies of all reports and technical correspondence directly to the Consultant. All reports shall completely and positively identify each transformer sampled.
- H. Following the disconnection of the electrical power source, pump PCB fluids in place from the equipment into specified containers before moving to minimize the accidental release of fluids. The PCB-filled type of electrical equipment is not intended for use as transport vessels and, therefore, must be drained of fluids before removal and transport. Following draining and drumming of fluids, transformers shall be move from the existing location to the loading area where they will be loaded onto a truck and transported to the disposal facilities. Each drum shall be properly labeled and sealed.
- I. Any transformers identified shall be marked with paint as follows:
 - 1. Green: No PCBs.
 - 2. Red: Containing PCBs.

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- J. Transformers shall then be ready to be moved and transported to the applicable disposal facility.
- K. Unless otherwise indicated on the plans, all transformers are to be removed and disposed of by the CONTRACTOR in accordance with the applicable laws and regulations. The CONTRACTOR shall assume that all transformers identified contain oil with concentrations of PCBs greater than 500 ppm.

3.12 FIRE EXTINGUISHERS

- A. Fire extinguishers may contain corrosive agents (monoammonium phosphate, ammonium phosphate) and may be reactive in water.
- B. De-pressurize prior to disposal.
- C. Fire extinguishers and their contents shall be landfilled in accordance with regulatory requirements. Do not discharge to the ground or to surface water. Do not cross contaminant with other fire extinguisher agents.
- D. Submit proof of disposal to the Consultant.

3.13 TEMPORARY STORAGE

- A. Partially filled containers of hazardous waste may be stored at the work site for intermittent packaging provided that:
 - 1. Each container is properly labeled when it is first placed in service;
 - 2. Each container remains closed at all times except when compatible waste types are added; and
 - 3. When moved from site to site, each container remains within the geographic boundaries of the facility without moving or crossing public access highways.

3.14 TRANSPORTATION, DISPOSAL AND/OR RECYCLING OF HAZARDOUS WASTES

- A. Continuously maintain custody of all hazardous material generated at the work site. Provide security, short-term storage, transportation and disposition until custody is transferred to an approved properly permitted disposal site or recycling center. Document continuous chain-of custody.
- B. Do not remove, or cause to be removed, hazardous waste from the property without a legally executed Uniform Hazardous Waste manifest.

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- C. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the Consultant.
- D. Recycling and Recovery: Turn over waste that contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include:
 - 1. Fluorescent light tubes.
 - 2. Thermostats with mercury switches.
 - 3. Lead acid batteries
 - 4. Refrigerant

3.15 DISCOVERY OF HAZARDOUS MATERIALS

- A. If hazardous materials, such as chemicals, or other hazardous materials are discovered during the course of the work other than those identified in the Plans and Specifications, cease work in affected area only and immediately notify the Consultant and City of Waltham of such discovery. Do not proceed with work in such areas until instructions are issued by the Consultant. Continue work in other areas.
- B. If unmarked containers are discovered during the course of the work other than those identified in the plans and Specifications, cease work in the affected area only and immediately notify the Consultant and the City of Waltham of such discovery. Do not proceed with work in such areas until instructions are issued by the Consultant. Take immediate precautions to prohibit endangering the containers integrity. Continue work in other areas.

END OF SECTION

Hazardous Materials Inventory

GREENE BUILDING		
Material Description (Hazard)	Material Location	Estimated Quantity
Fluorescent Light Tubes	Throughout Interior	1,425 Units
Fluorescent Light Ballasts	Throughout Interior	725 Units
Emergency Exit Signs/Lights/Strobes	Throughout Interior	50 Units
Fire Extinguishers	Throughout Interior	20 Units
Refrigerator Units	Throughout Interior	5 Units
Hydraulic Doorstops/Closers	Throughout Interior	120 Units
Hydraulic Elevator Piston (Hydraulic Fluid)	1 st Floor Elevator Pump Room	1 Unit (200 Gal)
Mercury Switches	Throughout Interior	10 Units
Paint Cans/Containerized Wastes (Flammable Liquid)	Throughout Interior	5 Units
Petroleum Liquids/Containerized Wastes	Throughout Interior	11 Units
Smoke Alarms	Throughout Interior	155 Units
Fire Alarm Switches	Throughout Interior	150 Units
Transformers	Throughout Interior	14 Units
High Intensity Discharge Light (Mercury/PCBs)	Exterior	10 Unit
Refrigerants Associated With Rooftop & Pad Mounted HVAC Units (CFCs/Refrigerant)	Exterior	6 Units
Diesel Aboveground Storage Tank	Exterior	1 Unit (500 Gal)
KELLY BUILDING		
Material Description (Hazard)	Material Location	Estimated Quantity
Fluorescent Light Tubes	Throughout Interior	700 Units
Fluorescent Light Ballasts	Throughout Interior	350 Units
Emergency Exit Signs/Lights/Strobes	Throughout Interior	25 Units
Refrigerator Units/ A/C Window Units	Throughout Interior	15 Units
Fire Extinguishers	Throughout Interior	15 Units
Hydraulic Doorstops/Closers	Throughout Interior	60 Units
Paint Cans/Containerized Wastes (Flammable Liquid)	Throughout Interior	55 Units
Petroleum Liquids/Containerized Wastes	Throughout Interior	20 Units
Smoke Alarms	Throughout Interior	55 Units
Fire Alarm Switches	Throughout Interior	30 Units
Motors (Oils Reservoirs)	Throughout Interior	12 Units
Transformers	Throughout Interior	10 Units
Fluorescent Light Tubes	Throughout Interior	700 Units
Fluorescent Light Ballasts	Throughout Interior	350 Units
Emergency Exit Signs/Lights/Strobes	Throughout Interior	25 Units

SHRIVER BUILDING		
Material Description (Hazard)	Material Location	Estimated Quantity
BASEMENT		
Fluorescent Light Tubes	Throughout Basement	90 Tubes
Fluorescent Light Ballasts	Throughout Basement	45 Ballasts
Fire Extinguishers	Throughout Basement	5 Units
Hydraulic Doorstops	Throughout Basement	6 Units
Compressors	Throughout Basement	8 Units
Chiller Unit	Basement	1 Unit
Hydraulic Elevator Above-Ground Storage Tanks (Approx. 100 Gal. Each)	Throughout Basement	2 Units
275-Gallon Above-Ground Storage Tanks	Throughout Basement	2 Units
Car Batteries Associated With Emergency Generator	Basement	2 Units
Emergency Generator	Basement	1 Unit
Emergency Exit Signs/Lights/Strobes	Throughout Basement	5 Units
1ST FLOOR		
Fluorescent Light Tubes	Throughout First Floor	600 Tubes
Fluorescent Light Ballasts	Throughout First Floor	300 Ballasts
Fire Extinguishers	Throughout First Floor	25 Units
Hydraulic Doorstops	Throughout First Floor	45 Units
Mercury Thermostats	Throughout First Floor	2 Units
Wall-Mounted Air Conditioning Unit	Throughout First Floor	2 Units
Compressed Gas Containers	Throughout First Floor	2 Units
Batteries	Throughout First Floor	2 Units
Air Conditioning Unit	Room 128	1 Unit
Emergency Exit Signs/Lights/Strobes	Throughout First Floor	20 Units
Smoke Detectors	Throughout First Floor	10 Units
Water Fountain	Throughout First Floor	2 Units
2ND FLOOR		
Fluorescent Light Tubes	Throughout Second Floor	575 Tubes
Fluorescent Light Ballasts	Throughout Second Floor	290 Ballasts
Fire Extinguishers	Throughout Second Floor	20 Units
Hydraulic Doorstops	Throughout Second Floor	40 Units
Air Conditioning Unit	Throughout Second Floor	2 Units
Emergency Exit Signs/Lights/Strobes	Throughout Second Floor	15 Units
Smoke Detectors	Throughout Second Floor	10 Units
Water Fountain	Throughout Second Floor	2 Units
3RD FLOOR		
Fluorescent Light Tubes	Throughout Third Floor	700 Tubes
Fluorescent Light Ballasts	Throughout Third Floor	370 Ballasts
Fire Extinguishers	Throughout Third Floor	25 Units
Hydraulic Doorstops	Throughout Third Floor	25 Units
Air Conditioning Units/Refrigerators	Throughout Third Floor	4 Units
Emergency Exit Signs/Lights/Strobes	Throughout Third Floor	10 Units
Smoke Detectors	Throughout Third Floor	24 Units

Water Fountain	Throughout Third Floor	2 Units
Small Container Iodine Solution	Room 318	1 Unit
4TH FLOOR		
Fluorescent Light Tubes	Throughout Fourth Floor	430 Tubes
Fluorescent Light Ballasts	Throughout Fourth Floor	200 Ballasts
Fire Extinguishers	Throughout Fourth Floor	10 Units
Hydraulic Doorstops	Throughout Fourth Floor	40 Units
Emergency Exit Signs/Lights/Strobes	Throughout Fourth Floor	20 Units
Smoke Detectors	Throughout Fourth Floor	10 Units
CERC BUILDING		
Material Description (Hazard)	Material Location	Estimated Quantity
BASEMENT		
Fluorescent Light Tubes	Throughout Basement	120 Tubes
Fluorescent Light Ballasts	Throughout Basement	60 Ballasts
Fire Extinguishers	Basement Hallway, Switchgear Room	10 Units
Batteries	Switchgear Room	25 Units
Electric Switchgear	Switchgear Room	5 Units
Smoke Detectors	Throughout Basement	5 Unit
Emergency Exit Signs/Lights/Strobes	Throughout Basement	5 Units
1ST FLOOR		
Fluorescent Light Tubes	Throughout First Floor	700 Tubes
Fluorescent Light Ballasts	Throughout First Floor	350 Ballasts
Fire Extinguishers	Throughout First Floor	7 Units
Hydraulic Doorstops	Throughout First Floor	50 Units
Mercury Thermostats	Throughout First Floor	4 Units
Wall-Mounted Air Conditioning Unit	Throughout First Floor	35 Units
Emergency Exit Signs/Lights/Strobes	Throughout First Floor	45 Units
Refrigerators	Room C149B	1 Unit
Smoke Detectors	Throughout First Floor	20 Units

SECTION 028100

MANAGEMENT AND DISPOSAL OF WASTE STREAMS

PART 1- GENERAL

1.1 **GENERAL PROVISIONS**

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION I — GENERAL REQUIREMENTS which are hereby made a part of this Section of Specifications.
- B. Where in the performance of the work, workers, supervisory personnel, Subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of PCB-containing caulking materials, where appropriate, continuous measures as necessary to protect the public and the environment from the hazard of exposure shall be taken. Such measures shall include the procedures and methods described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA), including the US EPA's PCB Bulk Product Waste Re-interpretation dated October 24, 2012.

1.2 **DESCRIPTION OF WORK**

- A. The Contractor shall furnish all labor, material, tools and equipment necessary for the on-site management, segregation, transportation and disposal of all waste associated with the project. This includes any disposal personal protective equipment and protective sheeting used in minimizing the spread of contamination.
- B. Related Work: The following items are not included in this Section and will be performed under the Designated Sections:
 - 1. Section 015000: TEMPORARY FACILITIES.
 - 2. Section 024200: SELECTIVE DEMOLITION.
 - 3. Section 025110: CONCRETE AND MASONRY DEMOLITION.

1.3 **SECTION INCLUDES**

- A. Regulatory Requirements
- B. Submittals
- C. Products
- D. Waste Characterization

- E. Waste Segregation
- F. Waste Profiles and Manifests
- G. Transport of Contaminated Materials
- H. Waste Disposal
- I. Waste Disposal Documentation

1.4 REGULATORY REQUIREMENTS

- A. The Work of this Section shall be performed in accordance with all applicable Federal, State, and local regulations, laws, codes and ordinances governing the handling, transportation, and disposal of hazardous materials, demolition debris, and solid waste.
- B. The Contractor shall obtain all Federal, State and local permits required for the transport and disposal of each waste stream. The Contractor shall adhere to all permit requirements or inference in any Submittal document, approval letter or other correspondence.
- C. The Contractor shall document that the disposal facilities proposed have all certifications and permits as required by Federal, State and local regulatory agencies to receive and dispose of the various waste streams. Specific receiving facilities are subject to approval by the Designer in accordance with the Contractor's Work Plan submitted under Section 013300.
- D. The Contractor shall not dispose of any waste stream at a landfill if a feasible alternative exists that involves the reuse, recycling, destruction, and/or detoxification of the material in accordance with 310 CMR 40.0032(5).

1.5 SUBMITTALS

- A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300.
- B. PCB Removal and On-Site Management Work Plan: The Contractor shall prepare a final detailed PCB-containing material removal work plan within two weeks of receipt of a Notice To Proceed. A draft removal work plan shall be submitted with the Contractor's bid. The work plan shall be prepared in accordance with all applicable referenced standards and shall incorporate a Performance Based Disposal approach as outlined in 40 CFR 761. There will be no Self Implementing Work Plans submitted to EPA for review and approval as part of this Project. The Contractor's work plan shall include, but not be limited to, drawings indicating the location, size, and details of PCB Bulk Product Waste removal areas, staging areas for removal and segregation, location and details of containment, decontamination facilities, sequencing of all remediation activities, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies for each separate activity. The work plan shall include at a minimum:
 - 1. Temporary Hazardous Waste Storage Area(s) (Kelly, CERC & Shriver Buildings): The work plan shall include, but not be limited to, a drawing indicating the proposed locations, sizes, and details for temporary hazardous waste storage areas. These area(s) shall be used to

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temporarily store PCB Bulk Product waste, containers, window frames, door frames, other PCB-containing, PCB-contaminated, and PCB-impacted materials. The temporary areas shall be constructed in accordance with 40 CFR 264.170 et al. and shall contain all required barriers, labeling and signage.

2. PCB Impacted Masonry Removal and Segregation (Kelly, CERC & Shriver Buildings): The work plan shall include, but not be limited to, a drawing indicating the location, size, and details of masonry removal areas (dropcloths, etc.) staging areas for masonry removal and segregation from identified area, location and details of containment, decontamination facilities, sequencing of window/door caulking and glazing removal, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies. The work plan shall also describe the segregation and disposal methodology for remaining brick and CMU in-fill material that is not PCB Bulk Product Waste.
 3. Removal/Disposal of Metal and Building Materials in Contact With PCB-containing Caulk, Glazing, and all other PCB-containing materials: The work plan shall include a specific description of the removal and disposal methodology associated with PCB Bulk Product Waste window and door frames, louvers, metal studs, support frames, wiring, conduit, structural steel, foam backer rod, rubber gasketing/backer rods, metal channel with fiberglass insulation, fasteners, ties, rebar, plaster, lathe, plaster framework, piping, ductwork, insulation, fireproofing, concrete, CMU, brick, and any other materials that may be coated with or in contact with PCB-containing caulk or PCB-containing material.
 4. Waste Transporter Permit: One copy of transporter's current waste transporter permit.
- C. PCB Disposal Plan: The Contractor shall provide a written plan that details his plan for transportation and disposal of PCB-wastes generated during the project. The Plan shall consist, but not be limited, to:
1. The Contractor shall select landfills that are established, fully operational, and in full compliance with all applicable Federal, State and local regulations.
 2. The Contractor shall designate one landfill as the primary facility and one as an alternate facility should project conditions require the use of a backup facility. The City of Waltham will not incur any additional costs if an alternate facility is utilized.
 3. The Contractor shall submit information for each landfills selected, within 10 days of issuance of the Notice to Proceed as part of its Work Plan. The facility information shall include the following:
 - a) General Information
 - 1) Facility Name
 - 2) Facility Address
 - 3) Name of Contact Person
 - 4) Title of Contact Person
 - 5) Telephone Number of Contact Person

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- 6) Permit Number
 - b) The landfills shall specify the volume of material that can be accepted from the site on a weekly and a total basis.
 - c) The landfills shall provide written confirmation that they are permitted to accept and will accept the classified waste of the general quality and quantity described by these Specifications.
 - d) The landfills shall provide a listing of all current and valid permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the soils or materials specified in this Contract.
 - e) The Contractor shall submit a complete list of the disposal/landfill facility's permitted allowable containment levels and physical characteristic requirements for contaminated material, and list any required regulatory approvals for individual waste streams.
- D. PCB Work Closeout Submittals:
- 1. Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing the PCB Bulk Product Waste, PCB Excluded Product Waste, and other PCB and non-PCB impacted materials have been properly disposed of.

1.6 HEALTH AND SAFETY PLAN

- A. The Contractor shall prepare a Health and Safety Plan that addresses all site activities and the plan for keeping personnel safe during these Activities. This plan also addresses safe working conditions relative to maintaining safe working conditions relative to chemical constituents in soil, sediment, groundwater and air.
- B. The Contractor shall provide the City of Waltham and the Designer with written notice of the existence of said Plan and of his/her communication of said Plan to all relevant workers. Work may not proceed at the Project Site until the Designer receives the written notice.
- C. The Contractor's Health and Safety Plan shall be communicated to the City of Waltham and the Designer for informational purposes.
- D. The Health and Safety Plan shall specifically address protection of the surrounding residential neighbors during all construction activities and meet applicable requirements.
- E. All Contractor's employees (including applicable subcontractors) who shall work or visit the Site, shall be informed of relevant Site procedures and policies by the Contractor and given a briefing on the site Health and Safety Plan before being allowed access to the site.
- F. Continuous monitoring shall be performed by the Contractor during all work involving unsafe activities within the active work area and at the Limits of Work.
- G. The Contractor shall be liable of any property damage or personal injury resulting from failure by

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the Contractor to take required or adequate safety precautions, and shall indemnify the City of Waltham, the Designer, and their employees and agents from such failure.

H. Worker's Qualifications Data:

1. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
2. Names and addresses of 3 similar projects that each person has worked on during the past 3 years and documentation of completion of appropriate PCB/Hazardous Waste training program and supervisors with appropriate PCB/Hazardous Waste supervisor training.
3. 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.
4. Workers must be trained as per OSHA and EPA requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
5. A personal air sampling program shall be in place as required by OSHA. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

1.7 EMERGENCY PLANNING

- A. Description: The Contractor shall prepare an emergency preparedness plan detailing at least the information required in this section and in any applicable federal, state or local regulations.
- B. Details of Plan:
 1. Emergency planning shall be developed prior to abatement initiation and submitted to the Director for review.
 2. Emergency procedures shall be in written form and prominently posted in the clean change area of the worker decontamination area.
 3. Emergency planning shall include written notification of police, fire and emergency medical personnel of planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities.
 4. Emergency planning shall include considerations of fire, electrical hazards, slips, trips, and falls, spills or releases of hazardous materials and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided.
 5. Employees shall be trained in evacuation procedures in the event of work place emergencies.
 - a) For Non-Life-Threatening Situations: Employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.

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- b) For Life-Threatening Injury or Illness: Worker decontamination shall take least priority. After measures to stabilize the injured worker, the injured worker shall be removed from the work place and secure proper medical treatment.
- C. Telephone numbers of all emergency response personnel shall be prominently posted in the clean area and equipment room, along with the location of the nearest telephone.

PART 2- PRODUCTS

2.1 **GENERAL**

- A. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with the operation of others at the Site or with employees' access and safety. The storage area shall be proposed by the Contractor and approved by the Designer.
- B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the Site.
- C. All materials and equipment shall comply, at a minimum, with all sections of these specifications, applicable federal and state regulations and policies.

2.2 **MATERIALS**

- A. Warning labeling shall have waterproof print and permanent adhesive affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA and DOT labeling requirements.
- B. Waste containers shall be suitable for loading, temporary storage, transport and unloading of waste streams without risk of ripping, rupture, or exposure to persons or emissions to the environment. Waste containers shall be pre-lined and suitable for transportation in conformance with all applicable Federal and state .required laws, regulations, and policies.
- C. Truck Liners shall be pre-formed polyethylene or equivalent with a minimum thickness of 10-mil for all applications.
- D. Tape shall be capable of sealing plastic joints. The bonding strength and resulting seal integrity shall not be affected by mist or water or any other materials used in the work area.
- E. Trucks placards shall be appropriate for the individual waste streams and shall confirm to US Department of Transportation (USDOT) requirements
- F. All forms shall conform to the applicable requirements specified by the appropriate regulation.

2.3 **SAFETY SUPPLIES AND EQUIPMENT**

- A. All workers shall be provided with suitable personal protection equipment as specified in the Contractor's Health and Safety Plan. This equipment shall include disposal coveralls, head protection, foot coverings, gloves, and eye protection. Minimum respiratory protection shall be compliant with current OSHA regulations.

2.4 **EQUIPMENT**

- A. Transportation equipment shall be suitable for loading and transportation of the waste streams without exposure to persons or property. The equipment shall be secured at all times and access restricted to unauthorized personnel.

PART 3- EXECUTION

3.1 **GENERAL**

- A. PCB Bulk Product Waste and adjacent impacted materials must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state, and local regulations and codes including those described in 40 CFR 761.
- B. The Contractor shall also ensure that no visible emissions of dust will occur during the disposal of PCB Bulk Product Wastes into appropriate disposal containers. At no time should free liquid waste be generated during the remediation activity.
- C. The Contractor is responsible to determine current waste packaging, labeling handling, transportation, disposal, and record-keeping requirements for each waste stream.
- D. The Contractor shall exercise care that no unauthorized persons have access to the waste streams either before or during transport.
- E. All temporary stored material must be removed from the Site in accordance with applicable regulatory deadlines however, no later than 90 days after the generation date or the completion date of this Contract whichever is sooner.

3.2 **WASTE CHARACTERIZATION**

- A. The Contractor shall be responsible for characterizing each waste stream to obtain approvals for final reuse or disposal of the waste stream. The Contractor shall collect waste samples in accordance with USEPA, MassDEP, and the disposal facility's methodologies, requirements, and procedures.
- B. The Contractor shall be required to submit a copy of all analytical results to the Designer within 2 days of receipt of the laboratory report. Analytical data shall be kept confidential, and distributed to the City of Waltham and the Designer.

3.3 **MATERIAL SEGREGATION**

- A. All asphalt and brick rubble shall be separated from wood, mechanical equipment, reinforced concrete and structural steel. Reinforcement in reinforced concrete shall be separated from the concrete offsite. Reinforcement and other steel materials that are PCB Bulk Product Waste must be segregated and disposed of as PCB Bulk Product Waste as required by Section 025110, related sections, and the drawings. Once the reinforcement and concrete are separated offsite, the reinforcement shall be recycled, and the concrete shall be crushed and recycled or disposed of in accordance with applicable regulations. Any oil-stained concrete shall be separated, characterized by the Contractor, and properly disposed of in accordance with applicable regulations. Wood shall be recycled or disposed of offsite by the Contractor. Structural steel, cast iron and other metals shall be removed from the Project Site and recycled unless otherwise required in these Specifications. Prior to demolition by heavy equipment, remove internal metal, wood and mechanical equipment. Reuse, salvage and recycle materials from the demolition to the greatest extent possible.
- B. Demolished masonry and concrete shall be segregated into those materials that will be disposed as

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PCB Bulk Product Waste and other materials disposed of or recycled at an off-site location permitted to accept the material.

- C. PCB Bulk Product Waste, ACMs, other hazardous materials, and materials not designated as such shall be handled and stored as separate waste streams and shall not be co-mingled.
- D. Do not stockpile any PCB Bulk Product Waste, and other PCB-impacted waste materials on site, or outdoors. Package such materials for transport immediately after removal from the building.

3.4 WASTE MANAGEMENT

- A. Sealed PCB Bulk Product Waste containers shall be moved to the temporary hazardous waste storage area(s), or loaded out into lined dumpsters that conform to all federal, state, and local laws and regulations governing the storage and transport of PCB waste.
- B. Conveyance equipment shall be suitable for on-site movement of the masonry and concrete debris to the on-site temporary storage area(s). The conveyance method shall minimize exposure to persons or property. The conveyance equipment shall be secured at all times and access restricted to unauthorized personnel.
- C. All waste containers shall indicate the date of generation. Dumpsters that house PCB waste must meet all applicable federal, state and local laws and regulations, and must be secured and lined. Open top containers are discouraged, but if they are used, they must be properly secured to prevent rain and/or snow from entering the container during storage and loading. The contractor must indicate in the Work Plan how he will manage this requirement. The containers must be properly labeled and secured at all times to prevent access by unauthorized personnel.
- E. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- F. Remove debris from elevated portions of the buildings by hoist, elevator, or other device that will convey debris to grade level.

3.5 WASTE PROFILES AND MANIFESTS

- A. The Contractor shall be responsible for preparing and submitting to the Designer for review all waste profile applications and questionnaires, and coordination with disposal facilities and all Federal and State Environmental Agencies. Waste profile applications and questionnaires shall include a summary of the analytical data and copies of the certified analytical data. All waste profile applications and questionnaires shall be submitted to the City of Waltham and the Designer seven (7) calendar days before the required submission date.
- B. The Contractor shall be responsible for preparing all hazardous and non-hazardous material manifests with all applicable analytical backup, notification, and control forms. Draft manifests shall be submitted to the City of Waltham and the Designer seven (7) calendar days before the required transport date.
- C. The City of Waltham will be the generator and will sign all hazardous and non-hazardous manifests and/or Waste Shipping Records and waste profile application or questionnaires.
- D. PCB Bulk Product Waste shall be transported under a hazardous waste manifest. All other waste streams shall be transported under non-hazardous waste manifests.

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- E. PCB Bulk Product Waste cannot be disposed within the Commonwealth of Massachusetts. As such, the waste is required to leave the Commonwealth and must be shipped under a hazardous waste manifest with “MA02” as the waste code.

3.6 TRANSPORT OF CONTAMINATED MATERIAL

- A. The Contractor shall not be permitted to transport contaminated materials off-site until all disposal or recycling facility documentation has been received, reviewed, and accepted by the City of Waltham and the Designer.
- B. The Contractor shall use licensed hazardous material transporters in conformance with the Massachusetts Hazardous Material Regulations as specified in 310 CMR 30.000 et. al. The hauler(s) shall be licensed in all states affected by transport.
- C. Waste Transporters are prohibited from “back hauling” any freight after disposition of the Commonwealth waste stream until decontamination of the vehicle and/or trailer is performed.
- D. The Contractor shall provide the Designer with the estimated total volume of each load or container shipment and provide an accurate count of each type of container and/or load before the waste is removed from the Site. The Contractor shall complete appropriate documentation for each load
- E. The Designer and/or Resident Engineer shall confirm the volume of each container or load removed from the Site.
- F. The Contractor shall remove waste containers from the work areas under observation of the Designer.
- G. The Contractor shall transport contaminated materials from the Site to the disposal or recycling facility in accordance with all United States Department of Transportation (DOT), USEPA, and MassDEP regulations.
- H. The Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated disposal facility in a timely manner and in accordance with all Federal, State, and local regulations.
- I. The Contractor shall be responsible for ensuring that free-liquid does not develop during transport. “Wet materials” shall not be loaded for transport. The Contractor shall be responsible to properly dispose of any free liquids that may result during transportation.

3.7 WASTE DISPOSAL

- A. Remove all remediation and demolition waste from the Site for disposal. Legally dispose of all materials from demolition (i.e. metals, wood, oil stained concrete, miscellaneous waste, etc.) as well as all equipment and other materials that are on the interior and exterior of the buildings. The disposal site shall be approved by the Designer and the City of Waltham. The loading of demolition materials for disposal shall be performed in a manner that prevents materials and activities from generating excessive dust and ensure minimum interference with roads, sidewalks and streets both onsite and offsite. The Contractor is encouraged to recycle the removed existing shoring towers.

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- B. Waste disposal will be in accordance with applicable state and federal regulations, including 40 CFR 761. PCB Bulk Product Waste and PCB Excluded Product Waste will be disposed at licensed and permitted facilities in accordance with USEPA regulations.
- C. Masonry material that is not considered PCB Bulk Product Waste shall be considered PCB-Excluded Product if it contains PCBs in concentrations greater than 2ppm and thus cannot be disposed within the Commonwealth of Massachusetts. The masonry material shall be disposed at an out of state facility permitted to accept materials with the PCB concentrations present.
- D. All wash waters are a TSCA regulated waste unless the concentrations of PCBs in the wash water are less than or equal to 0.5 ug/L (approximately 0.5 ppb). Wash water with concentrations greater than 0.61 ug/L must be managed and disposed in accordance with 40 CFR § 761.79(b)(1), 40 CFR 761(b)(1) or 40 CFR § 761.70. A Waste Manifest must be used to document transportation of wash water with concentrations greater than 0.5 ug/L off site. No on-site treatment of the wash water will be permitted.
- E. Under 40 CFR § 761.79(b)(1) wash water can go to a waste water treatment facility as long as the wash water PCB concentration is not greater than the discharge limit published in the facility's permit. Prior to disposal, a sample of the wash water will be collected for PCB and other analysis that might be required for acceptance at a disposal facility and delivered under chain of custody to a state certified laboratory for analysis.

3.8 WASTE DISPOSAL DOCUMENTATION

- A. Provide evidence, on an on-going basis, that demolition materials have been received at a legal disposal, recycle, reuse or salvage location. Transport of all materials off-site shall be in accordance with applicable Department of Transportation Regulations. All materials leaving the site shall become the property of Contractor.
- B. The Contractor shall provide certified tare and gross weight slips for each load received at the designated facility, which shall be attached to each returned manifest. The submission of the manifests shall be within the 30-day time period specified by the USEPA.
- C. The Contractor shall submit to the City of Waltham and the Designer, prior to receiving progress payment, documentation certifying that all materials were transported to, accepted, and disposed, at the approved receiving facility. The documentation shall include the following, as a minimum.
 - 1. Documentation shall be provided for each load from the site to the disposal facility, including all manifests and any other transfer documentation as applicable.
 - 2. Original signed copies of generator copies of the hazardous and non-hazardous material manifest
 - 3. All documentation for each load shall be tracked by the original manifest document number that was assigned.

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- D. Payment for waste disposal is based on certified weight slips collected at the disposal facility. No payment for disposal will be made until this documentation is received by the City of Waltham.

END OF SECTION

SECTION 028433

REMOVAL OF PCB CONTAINING CAULK MATERIALS

PART 1 - GENERAL

1.1 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 of the Specifications.
- B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS.
- C. Where in the performance of the work, workers, supervisory personnel, Subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of PCB-containing caulking materials, where appropriate, continuous measures as necessary to protect the public and the environment from the hazard of exposure shall be taken. Such measures shall include the procedures and methods described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA), including the US EPA's PCB Bulk Product Waste Re-interpretation dated October 24, 2012.

1.2 DESCRIPTION OF WORK

- A. The Contractor is responsible for verifying locations and quantities of caulk classified PCB Bulk Product Waste. Existing and previous locations of caulk on interior and exterior of the buildings shall be verified through a site walkthrough. Caulk materials and materials to which caulk was applied are classified as PCB Bulk Product Waste and must be removed and disposed as such by the Contractor.
- B. The Contractor shall provide all labor, materials, tools, equipment, services, testing, and incidentals which are necessary or required to perform the work of this Section in accordance with applicable governmental regulations, industry standards and codes, and these Specifications. The work of this Section includes but is not limited to the following:
 - 1. Removal, management, transportation and off-site disposal of all interior and exterior PCB-containing caulk between masonry, concrete, window surrounds, metal frames, metal flashing, and door surrounds throughout the Site buildings. Removal of all interior and exterior caulk at the CERC and Shriver buildings and exterior caulk associated with the Kelly building. These materials and the substrate to which they are adhered shall be considered as PCB Bulk Product Waste and managed in accordance with 40 CFR 761.

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2. Specific PCB Remediation Scope of Work:

Kelly Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all window and door caulking, window & door frames, seam & expansion joint caulking, and exterior brick masonry.

Shriver Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all interior and exterior window caulking, door caulking associated with exterior doors, window & door frames, seam & expansion joint caulking, pre-cast & cast in place concrete, and exterior brick masonry.

CERC Building: Removal and disposal as PCB Bulk Product Waste in accordance with a Performance Based Disposal, all interior and exterior window caulking, interior and exterior door caulking, interior CMU block walls, window & door frames, seam & expansion joint caulking, pre-cast & cast in place concrete, and exterior brick masonry.

3. Removal, management, transportation and off-site disposal of all interior and exterior PCB-containing caulk between masonry, concrete, window surrounds, doors, metal frames, metal flashing, piping, throughout the Shriver & CERC buildings. Removal, management, transportation and off-site disposal of all exterior PCB-containing caulk between masonry, concrete, window surrounds, and window frames on the exterior of the Kelly building. Removal of all interior and exterior windows, frames, doors, and from the CERC building. These materials and the substrate to which they are adhered shall be considered as PCB Bulk Product Waste and managed in accordance with 40 CFR 761. All exterior brick masonry shall be removed and disposed as PCB bulk product waste. Door caulk at the Kelly Building is also an asbestos-containing material that must be removed using manual labor prior to demolition of the brick façade.
4. Removal, management, transportation, and off-site disposal as PCB Bulk Product Waste of all interior and exterior building materials in contact with PCB-Bulk Product Waste caulking, including but not limited to, window and door frames, louvers, metal studs/framing, wood/plywood, support frames, wiring, filler material, conduit, structural steel, foam backer rod, rubber gasketing/backer rods, metal channel with fiberglass insulation, fasteners, ties, rebar, plaster, lathe, plaster framework, piping, ductwork, insulation, fireproofing, concrete, CMU, concrete, and brick. No metal decontamination will be allowed under this contract.
5. Transportation and lawful off-site recycling and/or disposal of concrete and masonry that contains PCB concentrations of less than fifty milligram per kilogram.
6. Transportation and lawful disposal of concrete and masonry (including CMU) that contains PCB concentrations greater than fifty milligrams per kilogram. This material will be considered PCB Bulk Product Waste and managed in accordance with 40 CFR 761. Prior to removal, CMU and brick materials classified as PCB Bulk Product Waste shall be fully and completely marked with a bright marking paint. Metal ties and rebar within the PCB Bulk Product Waste removal zone shall also be marked with a bright-colored paint and disposed by the Contractor as PCB Bulk Product Waste.
7. Prior to removal, concrete materials classified as PCB Bulk Product Waste, as well as, metal ties and rebar, shall be marked with a bright marking paint.

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8. Removal of PCB impacted concrete columns, floor and ceiling slab sections, and spandrel beams associated with the Shriver Building that are in contact with PCB-containing caulk and disposal as PCB Bulk Product Waste under the performance-based disposal provisions of 40 CFR 761. Prior to removal, concrete materials classified as PCB Bulk Product Waste, as well as, metal ties and rebar, shall be marked with a bright marking paint.
 9. Removal, handling, transportation, and lawful disposal of all disposable personnel protection equipment and incidental materials.
 10. Provide the City of Waltham and the Designer with required waste disposal documentation. Payment will be made only upon receipt of documentation from the disposal facility.
 11. Removal of all interior and exterior asbestos-containing materials (ACMs), hazardous materials, containerized wastes, and proper packaging and off-site disposal.
 12. Contractor is responsible for conducting a thorough walkthrough of the Kelly, Shriver, and CERC buildings to identify locations on the interior and exterior of the building where caulk is present or formerly present.
 13. Complete removal and disposal of the Shriver, CERC, Kelly, and Greene building structures, foundations, footings, as outlined in these Specifications.
 14. Excavation, site clearing, and site work as outlined in these Specifications.
 15. Demobilization of all equipment and materials from the Site.
- C. Related Work: The following items are not included in this Section and will be performed under the Designated Sections:
1. Section 023000: SUMMARY OF EXISTING CONDITIONS.
 2. Section 024200: SELECTIVE DEMOLITION.
 3. Section 028100: TRANSPORTATION AND DISPOSAL OF WASTE STREAMS.

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1.3 SCHEDULING AND SEQUENCING

- A. The work specified in this section will precede building demolition and as such the schedule for this work is strictly governed by the allowable time mandated by the City of Waltham.
- B. The Contractor shall not perform the work specified in this section until asbestos abatement and miscellaneous hazardous materials removal in has been completed.
- C. The Designer will confirm that the work specified in this section has been completed by visual inspection.
- D. The Contractor and the Designer shall develop a schedule for each phase of the work at the Pre-Construction Conference. The Designer or the City of Waltham may choose to alter the work sequence as required.
- E. The Contractor shall update the schedule and submit any schedule changes for review by the Designer at the weekly construction meetings.

1.4 SECTION INCLUDES

- A. Regulatory Requirements
- B. Submittals
- C. Products
- D. Examination
- E. Employee Protection
- F. Establishment of Regulated Work Area
- G. General Requirements
- H. PCB-Containing Caulk Removal
- I. Certification of Removal
- J. Waste Management
- K. Restoration

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1.5 REGULATORY FRAMEWORK

- A. The Work of this Section shall be performed in accordance with all applicable Federal, State, and local regulations, laws, codes and ordinances governing the removal, handling, and storage of PCB Bulk Product Waste in accordance with 40 CFR 761.

1.6 SUBMITTALS

- A. Submit each item in this Article according to the Conditions of the Contract and Section 013300.
- B. Product Data: Catalog sheets, specifications, and application instructions for any products used.
- C. Other project-wide submittals are submitted as specified in Section 028100.
- D. Detailed Contractor's Work Plan for PCB Removal activities with appropriate detail for submission to the Designer for approval. No work plans will be filed with EPA for this project.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description. No damaged or deteriorating materials shall be used.
- B. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with the operation of others at the Site or with employees' access and safety. The storage area(s) shall be proposed by the Contractor and approved by the Designer.
- C. Damaged or deteriorated materials shall not be used and shall be promptly removed from the Site.
- D. All materials and equipment shall comply, at a minimum, with all sections of these specifications, applicable federal and state regulations and policies.

2.2 MATERIALS

- A. Waste containers shall be suitable for loading, temporary storage, transport and unloading of waste streams without risk of ripping, rupture, or exposure to persons or emissions to the environment. Waste containers shall be pre-lined and suitable for transportation in conformance with all applicable Federal and state required laws, regulations, and policies. Waste Containers shall conform to the requirements of 40 CFR 761.65(c)(6).
- B. Wetting agent or surfactant shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and non-carcinogenic. It shall be applied as a mist using a low pressure garden sprayer recommended by the surfactant manufacturer.
- C. Reinforced fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating ten (10) mil thickness.
- D. Six (6) mil polyethylene disposable bags.
- E. Tape (or equivalent) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.
- F. Preprinted labels and warning signs shall be used and shall conform with all federal, state, and local codes and regulations. Labeling for Waste Containers shall conform to 40 CFR 761.40 and 761.45.
- G. All forms shall conform to the applicable requirements specified by the appropriate regulation.

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- H. Any planking, bracing, shoring, and barricades necessary to appropriately perform work activities shall conform to all applicable federal, state and local regulations.
- I. A sufficient supply of disposable mops, rags, and sponges for work area decontamination shall be available.

2.3 SAFETY SUPPLIES AND EQUIPMENT

- A. All workers shall be provided with suitable personal protection equipment as specified in the Contractor's Health and Safety Plan. This equipment shall include disposal coveralls, head protection, foot coverings, gloves, and eye protection. Minimum respiratory protection shall be compliant with current OSHA regulations.
- B. Air monitoring equipment of the type and quantity required to monitor operations and conduct personnel exposure surveillance in accordance with OSHA requirements.

2.4 TOOLS AND EQUIPMENT

- A. The Contractor shall provide tools and equipment that are suitable for removal of caulk, including but Limited to:
 - 1. Electrical equipment, protective devices and power cables shall conform to all applicable codes.
 - 2. Low-pressure garden sprayers, in sufficient quantity and suitable for application of wetting agent/surfactant, shall be used.
 - 3. Ladders, man-Lifts, scissor Lifts, and/or scaffolds of adequate length, strength and sufficient quantity to support the work schedule. Scaffolds shall be equipped with safety rails and kick boards in compliance with OSHA requirements.
 - 4. All vacuum equipment used in the work area shall utilize HEPA filtration systems, 99.97% efficient at 0.3 microns aerodynamic particulate size. All vacuums shall be delivered to the work area with clean waste containers and intact, undamaged HEPA filters installed.
 - 5. Conveyance equipment shall be suitable for on-site movement of the contaminated PCB Bulk Product Waste to on-site temporary storage areas proposed by the Contractor and approved by the Designer. The conveyance method shall minimize exposure to persons or property. The conveyance equipment shall be secured at all times and access restricted to unauthorized personnel.

PART3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor and Designer shall perform a visual survey of each work area and review conditions at the site for safety reasons.
- B. Inventory and record the condition of caulk prior to be removal.
- C. Perform surveys as the Work progresses to detect hazards resulting from caulk removal activities.

3.2 EMPLOYEE PROTECTION

- A. The Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.
- B. All employees of the Contractor who perform work removing caulk shall be properly trained to perform such duties.
- C. Posting of regulations: Display the following documents in the clean changing area, in public view, for the full duration of the work:
 - 1. Instructions for removing injured persons from work area.
 - 2. Post emergency action plan at the work site. This plan shall also include telephone numbers for hospital, doctor and Fire Company.

3.3 ESTABLISHMENT OF REGULATED WORK AREAS

- A. The Contractor shall establish a Regulated Area through the use of appropriate barrier tape, etc. and control unauthorized access into the area throughout the caulk removal activity in accordance with the following requirements.
- B. Install 10-mil reinforced fire retardant polyethylene drop cloths on floors to collect debris from removal operation. The floor protection shall extend out 10 feet in all directions from caulk removal activities.
- C. Caution signs shall be posted at all approaches to Regulated Areas so that an employee may read the sign and take the necessary protective steps before entering the area. These signs shall comply with 29 CFR1926.200(c) and read:

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CAUTION
PCB WORK AREA
HUMAN AND ENVIRONMENTAL TOXIN
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

- D. Implement appropriate engineering controls such as critical barriers, poly drop cloths, negative pressure, local exhaust ventilation, wet dust suppression methods, etc. to prevent the spread of PCB contamination from the Regulated Area.

3.4 GENERAL REQUIREMENTS

A. The Contractor shall:

1. Shut down and lock out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
2. Coordinate all power and fire alarm isolation with the appropriate representatives.
3. When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.

- B Ladders and/or scaffolds to be utilized throughout this project shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

- C. Protection of Existing Construction: Perform caulk removal work without damage or contamination of adjacent areas and existing construction.

- D. Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

- E. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA and USEPA standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

- F. Activity impacting caulk surfaces shall be performed in a manner which minimizes the spread of dust contamination and generation of airborne PCB.

- G. The City of Waltham will provide an Environmental Consultant to monitor the activities of the Contractor. No activity impacting caulk shall be performed until the Environmental Consultant is

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on-site. Environmental sampling, including ambient air sampling, shall be conducted by the Environmental Consultant throughout the project as deemed necessary.

- H. Contractor is responsible for employee exposure monitoring, as required by OSHA regulations.

3.5 PCB-CONTAINING CAULK REMOVAL

- A. Use procedures and equipment, as required, to limit occupational and environmental exposure to PCB's when PCB-containing caulk, associated backer rod and filler is removed in accordance with referenced standards.
- B. The Contractor shall limit the production and dissemination of caulk debris as much as possible.
- C. The Contractor shall remove the PCB caulk, associated backer rod, rubber gasketing, and filler using hand tools and whole or large pieces where possible.
- D. The Contractor shall moisten the underlying material using the low-pressure garden sprayers and then hand scrape all residual PCB-containing caulking, associated backer rod and filler from underlying material. The Contractor shall perform manual wet scraping to the maximum extent feasible.
- E. When the potential for dust generation exists, a HEPA filtered vacuum cleaner shall be used to provide local exhaust ventilation at the point of dust generation to prevent the release of visible fugitive emissions of dust.
- F. The Contractor shall use a High Efficiency Particulate Air (HEPA) filtered vacuum dust collection system to remove any visible existing caulk fragments on the underlying materials, the protective sheeting or any other nearby surface that has visible deposits of dust or debris.
- G. Mechanical grinding, cutting, sawing, sanding, or abrading the caulk or adjacent surfaces shall NOT be permitted.

3.6 CERTIFICATION OF REMOVAL

- A. The Contractor shall schedule visual clearance inspection with the Environmental Consultant at the Site, when work area is ready for clearance testing.
- B. The Environmental Consultant will perform a visual inspection of the work area. If the work area is satisfactory, the Environmental Consultant shall provide written approval of the work. If the work area continues to indicate the presence of caulk, the Contractor shall re-clean the area until acceptable to the Environmental Consultant.
- C. The Consultant shall have final determination of an acceptable clearance level. Any sign of residual caulk is unacceptable and will require the affected area(s) to be re-cleaned using the procedures described above.

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- D. Remove polyethylene sheeting from openings after the Consultant has confirmed visual removal of PCB containing caulking. Include removed poly sheeting in disposal drum/container for disposal as PCB contaminated material.

3.7 WASTE MANAGEMENT

- A. PCB-containing caulk shall be managed as a PCB Bulk Product Waste.
- B. Backer rod, rubber gasketing, masonry, concrete, metal, and all other surfaces to which caulk is applied, and associated filler shall be managed as PCB Bulk Product Waste.
- C. Sealed waste containers shall be moved to the temporary hazardous waste storage area.
- D. All waste containers shall indicate the date of generation.
- E. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- F. Access to the temporary storage area shall be controlled and limited to authorized personnel, and marked in accordance with 40 CFR 761.45.

3.8 RESTORATION

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Contaminated conditions shall be cleaned up immediately.
- C. Damages to existing structures and/or features shall be restored to its original conditions or better at the discretion of the City of Waltham.

END OF SECTION

DIVISION 3

SECTION 310000

EARTHWORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within SECTION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.2 SCOPE OF WORK

- A. Work covered by this specification includes:
 - 1. All labor and equipment required to excavate and grade the site due to building demolition
 - 2. Backfilling
 - 3. Erosion and sedimentation controls.

1.3 CONTRACT REFERENCE

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.4 DESCRIPTION

- A. The Contractor shall furnish all labor, material, tools and equipment necessary to excavate and perform demolition activities in accordance with SECTION 024000-1 – BUILDING AND ANCILLARY STRUCTURES DEMOLITION and re-grade as indicated on the Drawings.
- B. The Contractor shall use suitable on-site soils as fill.
- C. The Contractor shall make excavations in such a manner and to such widths that will give suitable room for performing the Work and shall furnish and place all sheeting, bracing, and supports, if necessary.
- D. The Contractor shall do all pumping and draining, if necessary; and shall render the bottom of excavation firm and dry. The Contractor shall collect and properly dispose of all discharge water from drainage systems in accordance with local and State requirements and permits.
- E. The Contractor shall raise the Site to final grades and compact the subgrade and intermediate layers to the required criteria set forth within the Section.

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- F. Routine monitoring of the in-place excavation support system shall be provided.
- G. Pavement Repairs

1.5 SECTION INCLUDES

- A. Excavating and backfilling for utility trenches and utilities to be abandoned.
- B. Excavating and shoring or bracing as necessary.
- C. Site grading.
- D. Required Engineering testing frequency and references.

1.6 RELATED SECTIONS

- A. Section – 31000 - SITE CLEARING

1.7 DEFINITIONS

- A. Compaction: The tamping and rolling of all backfill placed in uniform horizontal layers not exceeding a defined uncompacted lift thickness.
- B. “In-the-dry”: In-situ soil moisture content of no more than two percentage points above the optimum moisture content for that soil.
- C. Proof-rolling: The tamping and rolling of all subgrades and processed material not exceeding a defined uncompacted lift thickness.
- D. Unsuitable material: Material containing vegetation or organic material, such as mulch, peat, organic silt, topsoil, sod, deleterious material, and/or particles greater than four inches in diameter, that are not satisfactory for use as determined by the City of Waltham.
- E. Backfill: Soil material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- F. Base Course: Course placed between the grade and hot-mix asphalt paving.
- G. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.
- H. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- I. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated. Excavation is unclassified.

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1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Consultant. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by City of Waltham. Unauthorized excavation, as well as remedial work directed by City of Waltham, shall be without additional compensation.
- J. Fill: Satisfactory Soil used to raise existing grades or meet proposed grades.
- K. Optimum Moisture Content: Determined by the ASTM standard specified to determine the maximum dry density for relative compaction.
- L. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.
- M. Relative Density: As defined by ASTM D4253 or D4254.
- N. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.
- O. State Standards: Massachusetts Highway Department Standard Specifications for Highways and Bridges.
- P. 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.
- Q. Sub-base Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- R. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.
- S. Unclassified Excavation: The nature of materials to be encountered has not been identified or described herein.
- T. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.
- 1.8 PROTECTION OF WORKERS
- A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926. Contractors shall be familiar with the requirements of these regulations.

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- B. The Contractor is responsible for the adequacy of any excavation support systems and shall retain the services of a Professional Engineer registered in Massachusetts to design the required excavation support systems. The Contractor's Professional Engineer shall practice in a discipline applicable to excavation work, shall have experience in the design of excavation support systems and shall design in conformance with OSHA requirements. The Contractor's Professional Engineer shall provide sufficient on-site inspection and supervision to assure that any excavation support systems are installed and function in accordance with their design. Criteria listed herein defining the responsibilities of the Contractor's Professional Engineer are minimum requirements.

1.9 REFERENCES

- A. American Society of Testing and Materials Publications

1.10 SUBMITTALS

- A. Product data for geotextiles.
- B. Grain-size distribution analysis test data representative of existing on-site soils to be used as fill. The analysis shall be performed in accordance with ASTM D422 and all materials that are visibly classified to be different shall be tested.
- C. The Contractor shall submit to the City of Waltham, under provisions of Section 013300, manufacturer's literature and data on proposed compaction equipment.
- D. The Contractor shall provide the City of Waltham on a daily basis, the results of all compaction monitoring performed that day. The Contractor shall address the actions taken for areas and layers that did not achieve the required density criteria.
- E. The Contractor shall provide to the City of Waltham, on a daily basis, copies of field records documenting the location of stockpiled material, and stockpile identification data.
- F. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each onsite and borrow soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.
- G. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.11 REGULATORY REQUIREMENTS

- A. The Contractor shall comply with all excavation, trenching, and related sheeting and bracing requirements of Occupational Safety and Health Administration (OSHA) excavation safety standards, 29 CFR Part 1926.650 through 1926.652.
- B. The Work of this Section shall be performed in accordance with all applicable Federal, State, and local regulations, laws, codes, and ordinances governing the handling, transportation and disposal of on site soils. Any contaminated materials encountered during construction may constitute a regulated material under applicable Massachusetts law. The contractor shall notify the City of Waltham and comply with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000 for any contaminated materials encountered during excavation work. All testing, containment, and disposal of buried contaminated soils based on the MCP will be paid at an additional cost. All handling, transportation and disposal of such materials shall be accomplished in accordance with applicable Massachusetts Solid and Hazardous Waste Regulations and the Massachusetts Contingency Plan. .

1.12 QUALITY ASSURANCE

- A. Field inspection and testing will be performed by a geotechnical testing laboratory engaged by the Contractor.
- B. The Contractor shall be responsible for managing and tracking any and all materials excavated that appear contaminated and placed in stockpiles and protected for testing.
- C. The Contractor shall perform proof-rolling of all subgrades and processed material until the material is stable.
- D. The Contractor shall perform in-place density tests of on-site and off-site borrow materials as the Work progresses, to determine the degree of compaction being attained by the Contractor. Compaction tests shall be performed at the placement of each layer during embankment construction and at intervals of every 50 cubic yards of material compacted elsewhere. Any corrective work required as a result of such tests, such as additional compaction, or a decrease in the thickness of layers, shall be performed by the Contractor at no additional expense to the City of Waltham. In-place density testing shall be made at the Contractor's expense by the geotechnical laboratory.
- E. Do not commence earth moving operations until temporary erosion and sedimentation control measures are in place.
- F. The Designer's duties do not include the supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of an engineer nor any observation and testing by the Engineer shall excuse the contractor from defects discovered in his Work at that time or subsequent to the testing.
- G. Notify Utility Locator Service: Call Dig-Safe prior to beginning any Earth moving operations.
- H. Subgrades shall be approved for compactness and material composition by the City of Waltham prior to placing subsequent lifts. If inspections indicate Work does not meet specified

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requirements, the Work shall be removed, replaced and compacted at no additional cost to the City of Waltham.

- I. Geotechnical Testing Agency Qualifications: The contractor shall engage an independent testing agency qualified according to ASTM E 329 to conduct soil materials as documented according to ASTM D 3740 and ASTM E 548.
- J. Pre-excavation Conference: Conduct conference at Project site.

1.14 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the User Agency or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.
 - 1. Notify City of Waltham not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without City of Waltham's written permission.
 - 3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.
- C. 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 the City of Waltham or Authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM 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 2 percent of optimum moisture content at time of compaction.

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- D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; MassDot M2.01.4
- E. ¾” Washed Stone: Double washed, naturally or artificially graded mixture of natural or crushed gravel, or crushed stone meeting the requirements of MHD M2.01.4.
- F. 1-1/2” Washed Stone: Double washed, naturally or artificially graded mixture of natural or crushed gravel, or crushed stone meeting the requirements of MHD M2.01.2.
- G. Embankment Fill: Clean, low permeability soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material.

2.2 GEOTEXTILE

- A. Non-woven Filter Fabric: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 - 1. Survivability: Class 2; AASHTO M 288.
 - 2. Grab Tensile Strength: 157 lbf ; ASTM D 4632.
 - 3. Sewn Seam Strength: 142 lbf ; ASTM D 4632.
 - 4. Tear Strength: 56 lbf ; ASTM D 4533.
 - 5. Puncture Strength: 56 lbf ; ASTM D 4833.
 - 6. Apparent Opening Size: No. 40 sieve, maximum; ASTM D 4751.
 - 7. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.
- B. Woven geotextile fabric, manufactured for separation applications from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test method referenced:
 - 1. Survivability: Class 2; AASHTO M 288
 - 2. Grab Tensile Strength: 247 lbf ; ASTM D 4632
 - 3. Sewn Seam Strength: 222 lbf; ASTM D 4632
 - 4. Tear Strength: 90 lbf; ASTM D 4533
 - 5. Puncture Strength: 90 lbf; ASTM 4833
 - 6. Apparent Opening Size: No. 60 sieve, maximum; ASTM D4751
 - 7. Permittivity: 0.02 Per second, minimum; ASTM D 4491
 - 8. UV Stability: 50 Percent after 500 hours exposure; ASTM D 4355.

2.3 CRUSHED STONE

- A. Provide aggregate meeting MassDOT (formerly MassHighway Department) standard specifications for highways and bridges type M2.01.2 and M2.01.4 as indicated on the drawings.

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2.4 PAVEMENT

- A. Provide bituminous asphalt meeting MassDOT (formerly MassHighway Department) standard specifications for highways and bridges Table A in M3.11 for modified top course.

PART 3 - EXECUTION

3.1 GENERAL

- A. Prior to commencing work, the Contractor shall establish property line locations and place construction control markers clearly visible and understandable to workers in the field. The Contractor shall exercise due care so as not to disturb adjacent structures and shall leave the Site in clean and orderly condition upon completion of the work.

3.2 PREPARATION

- A. The Contractor shall be deemed to have inspected the Site and satisfied himself/herself as to actual grades and levels and true conditions under which the Work will be performed.
- B. Areas required for execution of Work shall be cleared. The work area shall be free of standing water and shall be dry.
- C. All site health and safety controls shall be fully established and in operation prior to beginning any demolition, soil, and fill excavation. Site controls shall include but not be limited to work zones properly barricaded, wheel wash and decontamination facilities, and all support equipment and supplies including personal protective equipment. All site controls shall be reviewed by the Engineer in the field.
- D. The Contractor shall provide all layout field data, including ties, to the City of Waltham. The Contractor shall maintain all required field controls throughout the performance of the Work.
- E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- F. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 311000 Site Clearing."
- G. Protect and maintain erosion and sedimentation controls, which are specified in on the drawings, during earthwork operations.
- H. Clear, grub, and strip any vegetation; scarify and excavate materials below embankment.

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3.6 EXCAVATION, GENERAL

- A. The Contractor shall remain responsible for adequacy and safety of construction means, methods and techniques.
- B. The Contractor shall perform all excavation work in accordance with the Site Health and Safety Plan.
- C. The Contractor shall complete all excavations regardless of the type, nature or condition of the material encountered. The Contractor shall be solely responsible for making all excavations in a safe manner.
- D. The City of Waltham shall be notified of unexpected subsurface conditions. Work shall be discontinued in affected areas until notified to resume work by the City of Waltham.
- E. Displaced or loose soil shall be prevented from falling into any excavation. The stability of soil slopes shall be maintained.
- F. All loose material shall be removed from the bottom of the excavation so that the bottom shall be in an undisturbed condition. If removal of the loose material results in excavation beyond the work limits and over excavation has not been approved by the City of Waltham; the restoration of the excavation to grade shall be done at no additional cost to City of Waltham.
- G. When the bottom of the excavation shall, by error of the Contractor, have been taken to a depth greater than the depth specified, or direct by the City of Waltham, said condition shall be corrected by refilling to the proper grade with crushed stone or the design shall be altered in a fashion acceptable to the City of Waltham to compensate for said error. All measures taken to rectify conditions caused by over excavation shall have the Engineer's approval, and any increase in cost resulting from such measures shall be borne by the Contractor.
- H. Excavation shall not be performed when weather conditions or the conditions of the materials are such that, in the opinion of the Engineer, work cannot be performed satisfactorily.
- I. Appropriate measures shall be provided to retain excavation sidewalls and to ensure that persons working in or near the excavation are protected. Barricades and fencing should be provided to protect all pedestrians. Sheeting shoring or bracing may be used to support the walls of excavations. Method, design, construction and adequacy of any required bracing shall meet the OSHA requirements of 29 CFR Part 1926 and are the responsibility of the Contractor.
- J. All damage related to or caused by the excavation shall be repaired at the expense of the Contractor.
- K. 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. .

3.7 SUBGRADE INSPECTION AND COMPACTION AT PAVEMENT PATCHES

- A. Notify Engineer when excavations have reached required subgrade.

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- B. Compact subgrade below all pavement patches. Do not compact saturated subgrades.

3.8 HANDLING OF EXCAVATED MATERIAL

- A. The Contractor shall excavate soil and fill to the limits necessary to achieve the required grades and balance the excavation and fill volumes as requested by the City of Waltham. No fill materials are intended to be brought onto the site or removed and disposed unless specifically indicated as needed for work such as the embankment, spillway etc. or deemed as unsuitable fill.
- B. Contractor shall employ methods necessary to isolate potentially contaminated soil, from non-contaminated soils, including benching.
- C. The Contractor shall separate excavated fill and soil based on the determination that the contaminated soil could be composed of variable material (e.g. physical differences and contain varying degrees of contamination (i.e., potentially contaminated, visually contaminated) or as directed by the City of Waltham.

3.9 STORAGE OF SOIL MATERIALS - STOCKPILING

- A. Materials shall be stockpiled on site at locations proposed by the Contractor and approved by the City of Waltham. Stockpiled materials shall be of sufficient quantities to meet project schedule and requirements
- B. Tracking of the stockpiles shall be performed in accordance with the approved Work Plan submitted by the Contractor in accordance with Section 013300.
- C. The temporary stockpiled fill and proven contaminated soil must be removed from the Site in accordance with applicable regulatory deadlines however no later than the completion date of this contract or 90 days from the date the stockpile was created, whichever is encountered first.
- D. Stockpiles shall be securely barricaded and clearly labeled. Differing materials shall be separated with dividers or stockpiled apart to prevent mixing.
- E. The Contractor shall direct surface water away from stockpile site to prevent erosion or deterioration of materials. Soils shall be suitably dewatered prior to their relocation on Site or disposal off site.
- F. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL AND TEMPORARY EMBANKMENT CONSTRUCTION

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Removing trash and debris.
 - 2. Removing temporary shoring and bracing, and sheeting (if required).

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- B. If, through failure or neglect of the Contractor to conduct the excavation work in a proper manner, the surface of the subgrade is in an unsuitable condition for proceeding with construction, the Contractor shall, at his own expense, remove the unsuitable material and replace it. Failure of the Contractor to control surface or ground water adequately, premature excavation at the work site, or other manifestations of the Contractor's neglect or improper conduct of the work, as determined by the Engineer, shall be grounds for requiring removal and replacement of unsuitable subgrade without additional compensation.
 - C. Grading in the vicinity of backfilling shall be properly pitched to prevent water from running into the backfilling. Work areas shall be kept free from water during performance of the work under this Contract at no expense to the City of Waltham. The Contractor shall build diversion berms and other devices necessary for this purpose.
 - D. The Contractor shall not commence backfilling operations until the City of Waltham gives approval.
 - E. After the subgrade has been prepared, fill material shall be placed and built-up in successive layers until the required elevations are reached. No fill shall be placed on a frozen surface, nor shall snow, ice, or other frozen material be included in fill. Wet materials containing moisture in excess of the amount necessary for satisfactory placement or compaction shall not be used.
 - F. All fill shall be brought up in essentially level lifts and shall be placed in levels by standard methods. The method of placement shall not disturb or damage other work. Layers of fill shall not exceed ten inches of uncompacted thickness before compaction, unless otherwise specified or as required for proper subgrade stabilization.
 - G. Place backfill on subgrades free of mud, frost, snow, or ice.
 - H. Filling operations shall continue until the fill has been brought up to the finished slopes, lines, and grades making proper allowances for thickness of surface treatment.
 - I. The entire surface of the work shall be maintained free from ruts and in a condition that will permit construction equipment to travel readily over any section. The top surface of each layer shall be made level or slightly sloped away from the center of the filled area. Fills should be graded to drain and compacted/sealed whenever precipitation is expected.
 - J. Backfilling shall not be performed when weather conditions or the conditions of the material are such that, in the opinion of the Engineer, work cannot be performed satisfactorily.
 - K. Place and compact embankment fill in 6" lifts to 95% maximum dry density. Stabilize with vegetation and erosion control mat immediately following construction.
 - L. Stockpile and dispose of unsatisfactory fill. Contractor is to carry a quantity allowance of 20 cubic yards for stockpiling and disposing of unsatisfactory fill.
- 3.11 UTILITY TRENCH BACKFILL AT UTILITIES TO BE ABANDONED
- A. Place backfill on subgrades free of mud, frost, snow, or ice.

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- B. Place and compact backfill material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of exposed utility piping or conduit to be abandoned.
- C. Backfill voids with satisfactory soil while installing and removing shoring and bracing.
- D. Place and compact backfill of satisfactory soil to final subgrade elevation.

3.12 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.
 - 1. Sequentially place and compact fill material in layers to required elevations
- B. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.13 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by +2 to -3 percent and is too wet to compact to specified dry unit weight.
 - 3. If in the opinion of the City of Waltham, additional moisture is required, water shall be applied by sprinkler tanks or other uniform distribution devices. If excessive amounts of water or if rain should cause excessive wetness, the area shall be allowed to dry as provided above.

3.14 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. Grading shall be done by standard methods. Areas adjacent to structures and other areas inaccessible to heavy grading equipment shall be graded by manual methods. Embankments shall be graded at all times to ensure runoff of water.
 - 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.
 - 3. Provide proper drainage from the site, no grading shall be done to direct water to damage or potentially damage adjacent property or work executed under this contract.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch

3.14 COMPACTION REQUIREMENTS

- B. The following table lists minimum compactive efforts, which are required for all, fill materials. Compaction of each lift shall be completed before placement and compaction of the next lift is started. The compaction equipment shall make an equal numbers of transverse and longitudinal coverages of each lift. The degree of compaction for fill placed in various areas shall be as follows:
1. At patches in paved areas

Within aggregate base course	95%
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 2. In landscaped areas 90%
 3. Embankment 95%
- *Percentage of maximum dry density of the materials at optimum moisture content as determined by methods or tests for ASTM designation D1551 Method D.
- C. Compaction shall be accomplished by vibratory rollers, multiple wheel pneumatic tired rollers or other types of approved compacting equipment. Loaded trucks, low beds, water wagons and the like shall not be considered as acceptable compaction equipment unless specifically approved by the Engineer for a particular location. Equipment shall be of any such design that it will be able to compact the fill to the specified density in a reasonable length of time. All compaction equipment shall be subject to the approval of the Engineer.
- D. The Contractor shall compact all fills made during the day of work prior to leaving the project for the evening. The upper layer shall be pitched as necessary to provide positive drainage towards swales or interceptor ditches to minimize ponding and erosion should it rain.

3.15 COMPACTION TESTING & SIEVE ANALYSIS

- A. Testing Agency: The Contractor will engage a qualified independent Engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.
- D. All sieve analyses for conformance of on-site materials to be used in the work shall be done by means of a mechanical wet sieve analysis and in accordance with ASTM D-422.
- E. The Contractor shall make all necessary excavations and preparations for testing. Excavations for density tests shall be backfilled with material similar to that excavated, and compacted to the specified density by the Contractor. Failure of the backfill material to achieve the specified density will be just cause for rejection of any or all portions of the excavation section

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tested. The Contractor will not be granted an extension of time or additional compensation for testing or repair of backfill ordered by the City of Waltham.

- F. Excavated material taken directly from on-site cuts that will meet Section 2.1 of these Specifications may be used as Common Borrow or Gravel Borrow provided the Contractor obtains written approval from the Engineer. No such fill material shall be put in place until approved for use by the Engineer in writing.
- G. Field density tests will be made by the Contractor's Inspection Agency in accordance with the Method of Test for ASTM Designation D1556 or D6938, to determine adequacy of compaction; the location and frequency of such field tests shall be at the City of Waltham's Inspection Agency's discretion.
- H. The Contractor shall notify the Inspection Agency when an area is ready for compaction testing. This notification shall be 48 hours in advance of placing or final compaction so that the contractor's Inspection Agency has adequate time to take compaction tests.
- I. Cooperate with the City of Waltham in obtaining field samples of in-place materials after compaction. Furnish incidental field labor in connection with these tests. The Contractor will be informed by the City of Waltham of areas of unsatisfactory density which may require improvements by removal and replacement, or by scarifying, aerating, sprinkling (as needed), and recompaction prior to the placement of the new lift. No additional compensation shall be paid for work required to achieve proper compaction.
- J. The City of Waltham's Inspection Agency's presence does not include supervision or direction of the actual work by the Contractor, his employees, or agents. Neither the presence of the Engineer nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.

3.16 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, and erosion. Keep free of trash and debris.
 - 1. 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.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off City of Waltham's property

END OF SECTION

SECTION 311000

SITE CLEARING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Protecting existing trees and vegetation to remain both inside and outside limits of construction, including temporary fencing for trees in close proximity to construction operations.
 - 2. Removing above and below grade site improvements storing those designated for re-use as required and disposing of those not specifically noted for re-use.
 - 3. Disconnecting, capping, and sealing of the pipe tunnels.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 310000 – EARTHWORK for soil materials, excavating, backfilling, and site grading and removal of site utilities.

1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

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- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil or other materials indicated to remain the City of Waltham's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

- A. Photographs sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
- B. Record drawings, according to Section 017700 - CONTRACT CLOSEOUT identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City of Waltham and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on User Agency's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until erosion and sedimentation control measures are in place.
- E. Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place or outside of the limit of work. Protect improvements on adjoining properties and on User Agency's property.
 - 1. Restore improvements damaged by Contractor's clearing activities to their original condition, at no additional expense to the Commonwealth.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to the City of Waltham.

3.2 PROTECTION

- A. Protect all trees noted to remain within limits of construction, and all trees that are outside the limits of construction and within 25'.
- B. Erect and maintain temporary fencing around the Site buildings before starting site clearing and demolition operations. Remove fence when demolition and site work is complete.
 - 1. Store all construction materials, debris, and excavated material within fenced area.
 - 2. Do not permit vehicles, equipment, or foot traffic within fenced area.
 - 3. Maintain fenced area free of weeds and trash.
 - 4. Except as otherwise directed, cutting and trimming of existing trees will not be permitted.

3.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed.
 - 1. Arrange with the electrical utility to shut off temporary electric service prior to disconnection, cutting, and capping.
 - 2. Notify the City of Waltham of any active utilities in addition to the temporary electric service.
- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by the City of Waltham or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify the City of Waltham not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without the City of Waltham's written permission.
- C. Removal of underground utilities is included in Section 310000 – EARTHWORK.

SHRIVER, CERC, KELLY, GREENE BUILDING DEMOLITION
FORMER FERNALD SCHOOL
WALTHAM, MASSACHUSETTS

- D. Removal of underground utilities is included in Division 2 Sections covering site utilities.

3.4 TOPSOIL STRIPPING

- A. Remove and dispose of sod and grass before stripping topsoil.
- B. Strip topsoil to the extent necessary to remove the building foundations to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

3.5 EXCESS TOPSOIL

- A. Dispose of all excess topsoil offsite.

3.6 SITE IMPROVEMENTS

- A. Remove and dispose of existing above- and below-grade improvements as indicated and as necessary.
- B. Remove and dispose of slabs, paving, curbs, gutters, and aggregate base as indicated.

3.7 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off site.
 - 1. Burning on site is prohibited.
 - 2. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION

APPENDICES

- **Environmental Reports: Kelley, Shriver, Greene and CERC**
- **Drawings**

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October 3, 2017

Mr. Joseph Pedulla, MCPPO, CPM
Chief Procurement Officer
City of Waltham
610 Main Street
Waltham, Massachusetts 02452

Via Email: jpedulla@city.waltham.ma.us

RE: **Asbestos & Hazardous Materials Survey Report
Greene Building
Former Fernald School
200 Fernald Road
Waltham, Massachusetts
EFI Project No. 98350-06361**

Dear Mr. Pedulla:

EFI Global Inc. (EFI) is pleased to provide this survey report to the City of Waltham for a pre-demolition hazardous materials survey of the interior and exterior of the Greene Building located on the campus of the former Fernald School in Waltham, Massachusetts (Site). EFI performed the survey on August 1-2, 2017 using fully trained and licensed building inspectors. The pre-demolition inspection included a survey of the building for suspect asbestos-containing materials, sampling of representative coatings for lead-based paint, and an inventory of universal waste and other hazardous materials.

EFI is pleased to provide environmental consulting services to City of Waltham. If you have any questions regarding the contents of this report, or are in need of additional information, please do not hesitate to contact Sean Cassidy at 978-886-3712. Thank you for this opportunity to serve your environmental needs.

Sincerely,

EFI Global, Inc.



John Vaz
Project Manager



Sean E. Cassidy, CIEC
District Manager

ASBESTOS & HAZARDOUS MATERIALS SURVEY REPORT

**GREENE BUILDING
FORMER FERNALD SCHOOL
200 TRAPELO ROAD
WALTHAM, MASSACHUSETTS**



Prepared for:

**City of Waltham
610 Main Street
Waltham, MA 02452**

Prepared by:



**155 West Street, Suite 6
Wilmington, Massachusetts 01887**

EFI Project Number: 98350-06361

October 3, 2017

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ATTACHMENTS

ATTACHMENT A – SAMPLE LOCATION DRAWINGS

ATTACHMENT B - TABLES

TABLE 1 – ASBESTOS-CONTAINING MATERIALS INVENTORY

TABLE 2 – UNIVERSAL WASTE & HAZARDOUS MATERIALS INVENTORY

TABLE 3 – PCB SAMPLING RESULTS

ATTACHMENT C - ASBESTOS LABORATORY REPORT

ATTACHMENT D - LEAD PAINT LABORATORY REPORT

ATTACHMENT E – PHOTOGRAPHS

ATTACHMENT F – PCB LABORATORY REPORT

1.0 EXECUTIVE SUMMARY

This report presents the results of the pre-demolition survey for asbestos-containing materials (ACM), lead-based paint (LBP), Universal Waste (e.g., PCB- and mercury-containing electrical equipment) and other hazardous materials (OHM) at the Greene Building located on the campus of the former Fernald School in Waltham, Massachusetts (Site).

EFI's asbestos and hazardous materials survey of the Site building was conducted on August 1-2, 2017. The scope of work for EFI's limited survey was to perform a walkthrough of the building to identify the types, locations, and quantities of ACMs and perform laboratory testing of suspect ACMs. In addition, EFI performed a lead paint screening of a representative number of painted/coated building components, and inventoried Universal Waste and OHMs present on the interior and exterior of the building. The purpose of EFI's limited survey was to identify and quantify ACMs and OHMs that may need to be removed prior to building demolition activities and to identify LBP that may present on the interior and exterior of the site building so that construction personnel can be made aware of the presence of LBP.

The Site building is an approximately 65,000 square foot, three-story, brick walled structure with a flat rubber roof on concrete decking. Interior portions of the Site structure were finished with carpeted and tiled flooring, sheetrock walls, plaster walls and ceilings, and acoustic ceiling tiles. The Site has been vacant for several years and has been vandalized.

Asbestos

Section 2.0 outlines the procedures and results of the asbestos survey. The survey involved locating, quantifying, and evaluating the condition of accessible suspect asbestos-containing materials using bulk sampling and visual inspection techniques.

The asbestos inspection was performed by Commonwealth of Massachusetts-licensed asbestos inspectors Mr. Chris Eustis and Mr. John Vaz. A total of 130 samples of suspect asbestos-containing materials (ACM) were analyzed for asbestos content during the survey. EFI's inspectors performed the visual inspection and bulk sampling of suspect ACMs on Site and submitted them under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. The findings of this report are based upon observations of accessible materials and the analysis of representative bulk samples collected.

The locations of ACMs identified herein are depicted on the sample location drawings presented in Attachment A. Asbestos and hazardous materials inventories (Table 1 & Table 2, respectively), indicating the types and quantities of asbestos and hazardous materials identified during the survey are presented in Attachment B. Copies of the asbestos laboratory analytical reports are presented in Attachment C.

The following suspect ACMs sampled by EFI were reported by EMSL as containing greater than or equal to one percent asbestos, the Massachusetts limit for classification as ACM:

- 2'x2' pinhole cementitious ceiling tiles
- Pipe insulation
- Black mastic associated with 12"x12" beige mottled floor tile
- 9"x9" grey floor tile and associated black mastic
- Tan pebble linoleum
- Green linoleum
- Brown vent caulk (bottom layer)
- 9"x9" beige with black streak floor tile
- Transite panels/wiring
- Black pipe flange gasketing

If suspect ACMs other than the above-referenced materials are identified during demolition activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

Based on the laboratory results and EFI's visual observations, it is recommended that asbestos-containing materials identified at the Site building be properly removed and disposed by a Massachusetts-licensed asbestos abatement contractor prior to the start of demolition activities.

Lead-Based Paint

Section 3.0, outlines the procedures and results of the lead paint survey. During the survey, EFI performed limited testing for lead-based paint in accessible areas of the building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance with USEPA method SW846-7420. Samples collected from teal paint on concrete, purple paint on the pool, and red paint on concrete, all contained detectable concentrations of lead.

It is recommended that construction or demolition personnel conducting demolition work at the Site building comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site. The analytical results of the testing performed by EFI, including location, building component, and percent lead for each interior/exterior building component tested are presented in Attachment D.

Universal Waste

Section 4.0 outlines the procedures and results of the Universal Waste survey. EFI conducted a visual inspection for the presence of PCB- and/or mercury-containing fluorescent light fixture components within the interior of the building. EFI identified suspected PCB-and di (2-ethylhexyl) phthalate (DEHP)-containing light ballasts, and mercury-containing fluorescent light bulbs throughout the building. It is recommended that identified Universal Waste at the Site building be properly removed, transported and disposed by a qualified Contractor. An inventory of Universal Waste identified during EFI's survey is presented in Attachment B.

Other Hazardous Materials

Section 5.0 outlines the procedures and results of the OHM survey/inventory. Other hazardous materials observed within the Site building included mercury thermostats/switches, emergency exit signs/lights/strobes (lead acid batteries), and miscellaneous containerized wastes. It is recommended that the identified Hazardous Materials at the Site building be properly removed, transported, and disposed by a qualified contractor. An inventory of OHMs identified during EFI's survey is presented in Attachment B.

Limitations

This report is intended for the sole use of the City of Waltham and is not to be used as a bidding document. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user. This investigation was performed to identify readily accessible and visible hazardous materials, however, it should not be assumed that all hazardous materials in the building have been identified due to issues relating to accessibility of rooms, inaccessible building areas and wall/ceiling cavities. EFI's survey did not include an evaluation of the Site building for underground steam lines, subsurface foundation damp-proofing, and underground transite sewer/water piping.

EFI's professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

2.0 ASBESTOS CONTAINING MATERIALS SURVEY

2.1 SAMPLING METHODOLOGY

The survey was performed by USEPA-accredited and Commonwealth of Massachusetts licensed asbestos inspectors. EFI conducted a thorough inspection of accessible areas of the buildings. Limited exploratory demolition was performed on the interior and exterior of the buildings to evaluate the potential presence of hidden asbestos-containing materials using hand tools. Bulk samples representing individual homogenous areas of suspect materials were collected in a randomly distributed manner, in accordance with the methods outlined below.

Building materials exist in the form of thermal systems insulation (TSI), surfacing materials, and miscellaneous materials. The following illustrates the sampling strategy implemented by EFI:

- (a) Surfacing materials (e.g., wall and ceiling plaster) - In a randomly distributed manner, collect bulk samples of surfacing materials, representative of each homogeneous area, and not assumed to be ACM.
 - (1) Collect at least three bulk samples from each homogeneous area that is less than or equal to 1,000 ft².
 - (2) Collect at least five bulk samples from each homogeneous area that is greater than 1,000 ft², but less than or equal to 5,000 ft².
 - (3) Collect at least seven bulk samples from each homogeneous area that is greater than 5,000 ft².
- (b) Thermal systems insulation (e.g., pipe fitting insulation, tank insulation, etc.)
 - (1) In a randomly distributed manner, collect at a minimum, three (3) bulk samples of thermal systems insulation material, representative of each homogeneous area, and not assumed to be ACM.
 - (2) Collect, at a minimum, one (1) bulk sample of patched thermal systems insulation,

representative of each homogenous area, and not assumed to be ACM, providing the section of patch was less than 6 linear or square feet.

- (3) Collect, at a minimum, three (3) representative bulk samples of each insulated mechanical system not assumed to be ACM, including, but not limited to cementitious material used on pipe fittings such as tees, elbows, or valves. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.
 - (4) Bulk samples are not required to be collected from any homogeneous area where the accredited asbestos inspector has determined that the thermal systems insulation is a non-suspect material (i.e., fiberglass, foam glass, rubber, or any other non-ACM).
- (c) Miscellaneous materials (e.g., floor and ceiling tiles) - Collect, at a minimum, two (2) representative bulk sample of each miscellaneous material assumed to be ACM, including, but not limited to ceiling tiles, floor tiles, associated floor tile mastic, etc. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.

2.2 ASBESTOS-CONTAINING MATERIALS

The following suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos:

- Pool liner
- Yellow rubber tile mastic
- Purple cove base and associated yellow mastic
- Black cove base and associated yellow mastic
- Interior white window caulk
- Grey duct sealant
- Glazed block grout
- Grey pebble linoleum and associated yellow mastic
- Grey seam caulk
- White interior door caulk
- Grey base coat plaster
- White skim coat plaster
- Sheetrock
- Joint compound
- Ceramic wall tile grout
- Ceramic floor tile grout
- Faux wood flooring
- 6" brown cove base and associated yellow mastic
- White sink undercoat
- Red duct sealant
- 4" brown cove base and associated yellow mastic
- 12"x12" beige mottled floor tile*
- White skim coat on handicap ramp
- Mud on fiberglass insulation
- Boiler exhaust insulation
- White flange gasketing
- Black mastic associated with 9"x9" beige with black streak floor tile
- Beige adhesive associated with tan pebble linoleum
- Backing associated with green linoleum
- Grey terrazzo flooring
- 1'x1' pinhole spline ceiling tiles and associated brown glue daubs
- Brown glue daubs associated with 1'x1' pinhole fiberglass ceiling tiles
- Pink pebble linoleum
- Black ceramic floor tile grout
- Pipe fitting mud
- Yellow carpet mastic
- Dark grey pebble linoleum and associated yellow mastic
- Black duct covering
- Black vibe cloth
- Black seam sealant
- Black roof tar
- Yellow rubber roofing adhesive
- Exterior white window caulk
- Beige door caulk
- Grey building seam caulk
- Beige vent caulk (top layer)**
- Brick
- Mortar
- White tank insulation
- Spray-on fireproofing
- Textured paint
- Boiler exhaust insulation
- Foundation damp-proofing

*Black mastic associated with non-ACM 12"x12" beige mottled floor tile was found to be asbestos containing. As such, the 12"x12" beige mottled floor tile impacted by this adhesive must be managed as ACM due to asbestos contamination from the black mastic.

** ACM Brown vent caulk (bottom layer) was found beneath the beige vent caulk (top layer). As such, the beige vent caulk must be managed as ACM due to asbestos contamination from the brown vent caulk.

The types, locations and estimated quantities of ACMs identified during the survey are presented in Attachment B.

Samples of suspect asbestos-containing materials were submitted under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. The asbestos laboratory analytical report is presented in Attachment C.

By using the PLM/DS method, a trained microscopist is able to identify and distinguish between asbestos group minerals and other fibrous materials such as cellulose (paper), mineral (rock), wood, or glass fiber. The quantity of each of these substances is estimated on a visual basis and recorded as a percent. If a material contains greater than or equal 1% asbestos, it is considered to be an asbestos-containing material under Massachusetts Department of Environmental Protection asbestos regulations.

EMSL is an EPA-accredited laboratory "Interim Asbestos Bulk Sample Analysis Quality Assurance Program". EMSL is also accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). The PLM/DS analytical method is modeled after 40 CFR Part 763, Subpart F, Attachment A: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples."

2.3 ADDITIONAL CONSIDERATIONS/ SPECIFIC RECOMMENDATIONS

EFI evaluated areas of the building that were reasonably accessible at the time of the survey. EFI's survey scope of work included visual inspection and assessment of areas behind sheetrock ceilings and walls only in locations where exploratory demolition using hand tools was possible.

EFI performed roof sampling during the survey in order to determine whether asbestos-containing roofing materials were present. The City of Waltham performed test pitting to identify sub-surface foundation damp-proofing. EFI tested the damp-proofing and EMSL reported that it contained no detectable asbestos.

EFI recommends that any hidden materials uncovered during future demolition activities and not identified within this report, should be assumed to be asbestos-containing until laboratory analysis proves otherwise. EFI's survey did not include an assessment for the presence of underground steam lines, and underground transite water/sewer lines that may be present at the Site.

2.4 GENERAL RECOMMENDATIONS

If suspect ACMs other than the above-referenced materials are identified during demolition activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

EFI recommends that asbestos-containing materials that are to be impacted by the proposed demolition activities at the Site building be properly removed and disposed by a Massachusetts-licensed Asbestos Abatement Contractor. The abatement must be completed in accordance with all requirements of Commonwealth of Massachusetts asbestos regulations; EPA regulations (40 CFR 61); and OSHA regulations (29 CFR 1926.1101), including all applicable local ordinances and policy statements.

3.0 LEAD-BASED PAINT INSPECTION AND METHODOLOGY

During the survey, EFI performed limited testing for lead-based paint in accessible areas of the interior and exterior of the Site building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted by EMSL with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance with US EPA method SW846-7420.

3.1 Summary of Findings

The EPA defines “lead-based paint” as paints or coatings containing lead in concentrations of greater than 0.5 percent by weight or 1.0 mg/cm². Samples collected from teal paint on concrete, purple paint on the pool, and red paint on concrete, all contained detectable concentrations of lead below 0.5% by weight. Samples of the following paints contained concentrations of lead below laboratory detection limits –

- Blue paint on plaster
- Beige paint on plaster
- Orange paint on concrete
- Blue paint on concrete
- White paint on concrete ceiling
- Brown paint on sheetrock
- Pink paint on plaster

A copy of the lead paint laboratory analytical report is presented in Attachment D.

3.2 REGULATORY IMPLICATIONS AND RECOMMENDATIONS

Regulatory Implications

OSHA defines any detectable concentration of lead in paint as a potential lead exposure hazard to workers performing construction or demolition work that disturbs these surfaces, as even small concentrations of lead can result in unacceptable employee exposures. The level of exposure varies based upon the lead concentration, method of removal, and other workplace conditions. Since these conditions can vary greatly, the OSHA Lead Construction Standard (29 CFR 1926.62) requires exposure monitoring or the use of historical or objective monitoring data to ensure that employee exposures do not exceed the OSHA action level of 30 micrograms per cubic meter of air (µg/m³) and the OSHA permissible exposure limit (PEL) of 50 µg/m³.

OSHA requires that contractors monitor employee exposures if coated surfaces with paint containing lead are impacted during construction or demolition. Contractors and employers of staff who may disturb these materials are obligated to perform a negative exposure assessment in accordance with OSHA regulations to document that exposure to lead does not exceed the OSHA action level and the PEL.

OSHA states that the employer must treat employees as if they would be exposed above the PEL until the employer 1) performs an exposure assessment that documents that employees are not exposed above the PEL or 2) can supply prior data regarding the same type of work which may exempt them from the standard. The OSHA Lead Construction Standard applies to many construction activities including the following:

- manual demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- abrasive blasting enclosure movement and removal;
- power tool cleaning;
- lead burning;
- using lead-containing mortar or spray painting with lead-containing paint;
- abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- cleanup activities where dry expendable abrasive are used; and
- any other task the employer believes may cause exposure in excess of the PEL.

The contractor must provide respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under the standard include a written compliance program, as well as, record keeping.

The contractor must also characterize and dispose of all dust, debris, and blast media in accordance with US EPA and Massachusetts Department of Environmental Protection regulations. This includes waste characterization of dust, debris and blast media generated during paint removal activities via the toxicity characteristic leaching procedure (TCLP).

Waste Disposal Implications

Waste disposal is governed by the EPA's Resource Conservation and Recovery Act (RCRA) regulations, which distinguish between solid wastes and hazardous wastes. Solid wastes include general construction debris and are subject to minimum handling, transportation, and landfill disposal requirements under RCRA regulations. Hazardous wastes, including certain lead-containing materials, are subject to restrictions designed to prevent the hazardous materials from entering the environment. Lead waste is classified as hazardous or non-hazardous based on the results of the TCLP testing. The leachability test measures whether or not lead leaches from the waste in excess of the regulated level of 5.0 mg/L. If the results of the TCLP analysis exceed this level, the waste must be handled, transported and disposed as a hazardous waste in an approved waste site, reclamation facility or incinerator site. EPA's regulations require the TCLP test be performed so that it represents the matrix and material of the waste stream.

Recommendations

It is recommended that lead TCLP samples be collected and analyzed prior to disposal. If the TCLP results for the building materials are below 5.0 mg/L, the materials can be disposed as construction debris. If the TCLP results are greater than 5.0 mg/L, the materials must be disposed as a lead hazardous waste.

It is also recommended that construction or demolition personnel conducting work at the facility comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site.

4.0 PCB/MERCURY-CONTAINING LIGHT FIXTURES (UNIVERSAL WASTE)

The primary concern regarding the disposal of used light ballasts is the health risk associated with exposure to PCBs. Fluorescent light ballasts contain a small capacitor that may contain high concentrations of PCBs (greater than 90% pure PCBs or 900,000 ppm). These chemical compounds were widely used as insulators in electrical equipment such as capacitors, switches, and voltage regulators through the late 1970s. Fluorescent light ballasts manufactured prior to 1979 may contain small quantities of PCBs. Recently manufactured fluorescent light ballasts are required to have "No PCB" labels. Light ballasts that do not have "No PCB" labels should be treated as PCB-containing and handled/disposed of accordingly. In addition, if light ballasts do not have "No PCB" labels, the manufacturer should be contacted to ascertain the presence of PCBs. Following the ban of PCB production, in 1979 manufacturers began using di (2-ethylhexyl) phthalate (DEHP) as a replacement to PCBs. DEHP is listed as a hazardous substance under the EPA's Superfund regulations. Generators discarding of light ballasts should take the same precautions with their DEHP ballasts as they do with their PCB ballasts to avoid any future liabilities.

The primary concern regarding the disposal of fluorescent light bulbs is the health risk associated with exposure to mercury. Fluorescent light bulbs contain a small quantity of mercury that can be harmful to the environment and to human health when improperly managed. Mercury is regulated under RCRA, which is administered by the EPA. To prevent these toxic materials from contaminating the environment, EFI recommends that fluorescent light bulbs be disposed/recycled of in accordance with applicable regulations.

4.1 SUMMARY OF FINDINGS

EFI conducted a survey to determine the estimated number of fluorescent light bulbs and ballasts located throughout the building. Investigative findings indicate that ballasts located within the building are either unlabeled or have labels that identify them as "No PCBs." It is recommended that all ballasts be removed from the building and disposed in accordance with applicable federal, state, and local regulations. EFI recommends recycling of fluorescent light bulbs in accordance with applicable state and federal regulations. A detailed inventory of fluorescent light tubes and ballasts is provided in Table 2 of Attachment B.

5.0 OTHER HAZARDOUS MATERIALS

EFI performed an inventory of hazardous chemicals, petroleum and mechanical equipment located within the building that will require special handling and disposal prior to building demolition activities. During the survey, EFI identified hydraulic doorstops, mercury thermostats/switches, lead acid batteries, equipment containing CFCs/refrigerant, suspect PCB-containing transformers, fire extinguishers, and various containerized wastes within the Site building. An inventory of the identified building-related hazardous materials is presented in Attachment B.

It is recommended that identified Other Hazardous Materials at the Site building be properly removed and disposed by a qualified contractor.

6.0 PCBs IN BUILDING MATERIALS

PCB sampling was conducted during a separate site visit on September 12, 2017 by John Vaz of EFI. EFI collected representative samples window and door caulking/glazing material identified

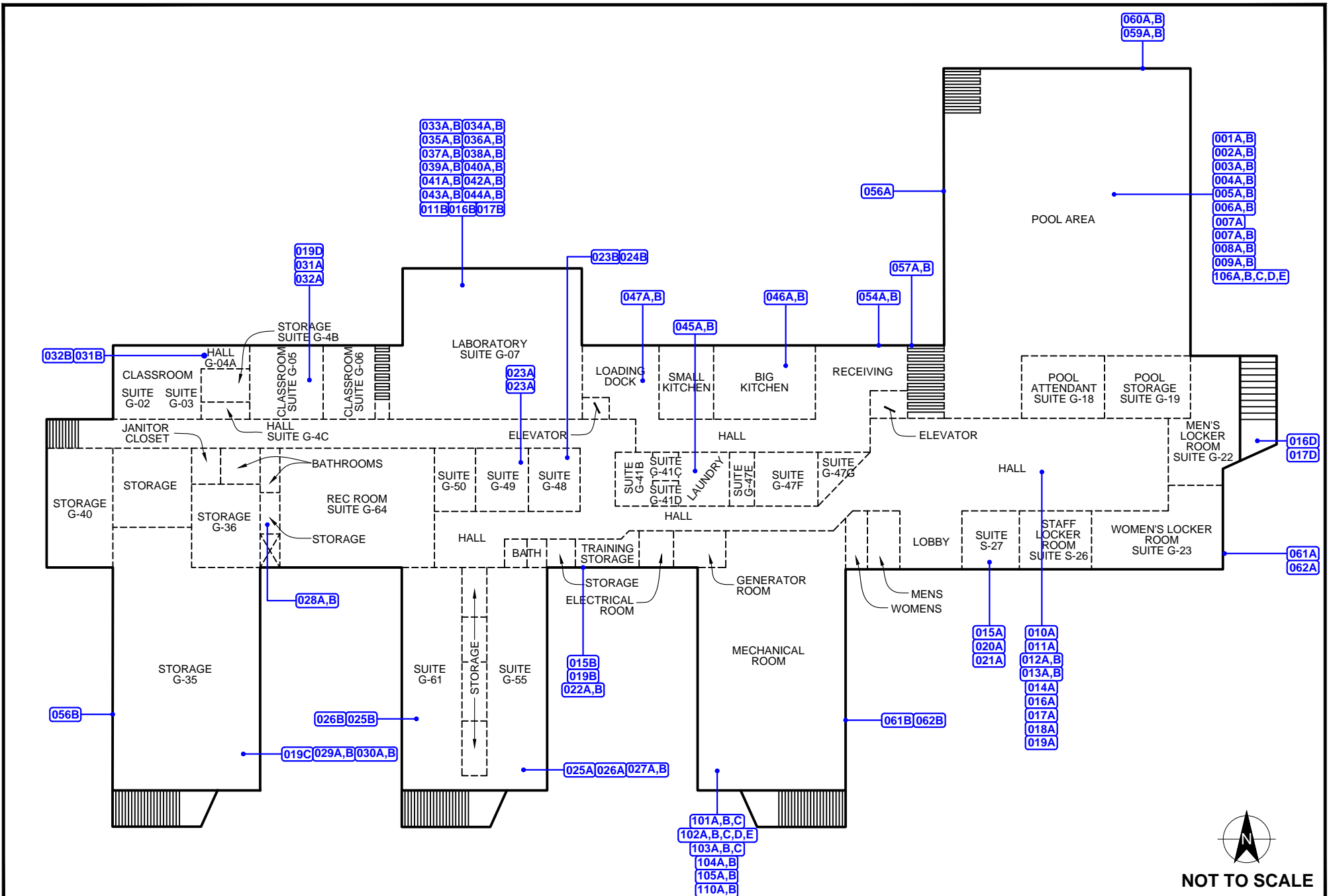
during the walkthrough and submitted the samples to Con-Test Analytical Laboratory of East Longmeadow, Massachusetts. Samples were analyzed using EPA Method 8082 with soxhlet extraction with a standard 5-day turnaround time.

All of the PCB samples of window and door caulking/glazing collected by EFI and analyzed by Contest were reported as containing a concentration of PCBs of less than 50 parts per million (ppm). Therefore, these materials are not regulated as "PCB bulk product waste" under 40 CFR 761.3 and no further actions are required.

A copy of the laboratory report prepared by Contest is presented in Attachment E. A table summarizing PCB sampling results is presented in Attachment B.

ATTACHMENT A

SAMPLE LOCATION DRAWINGS

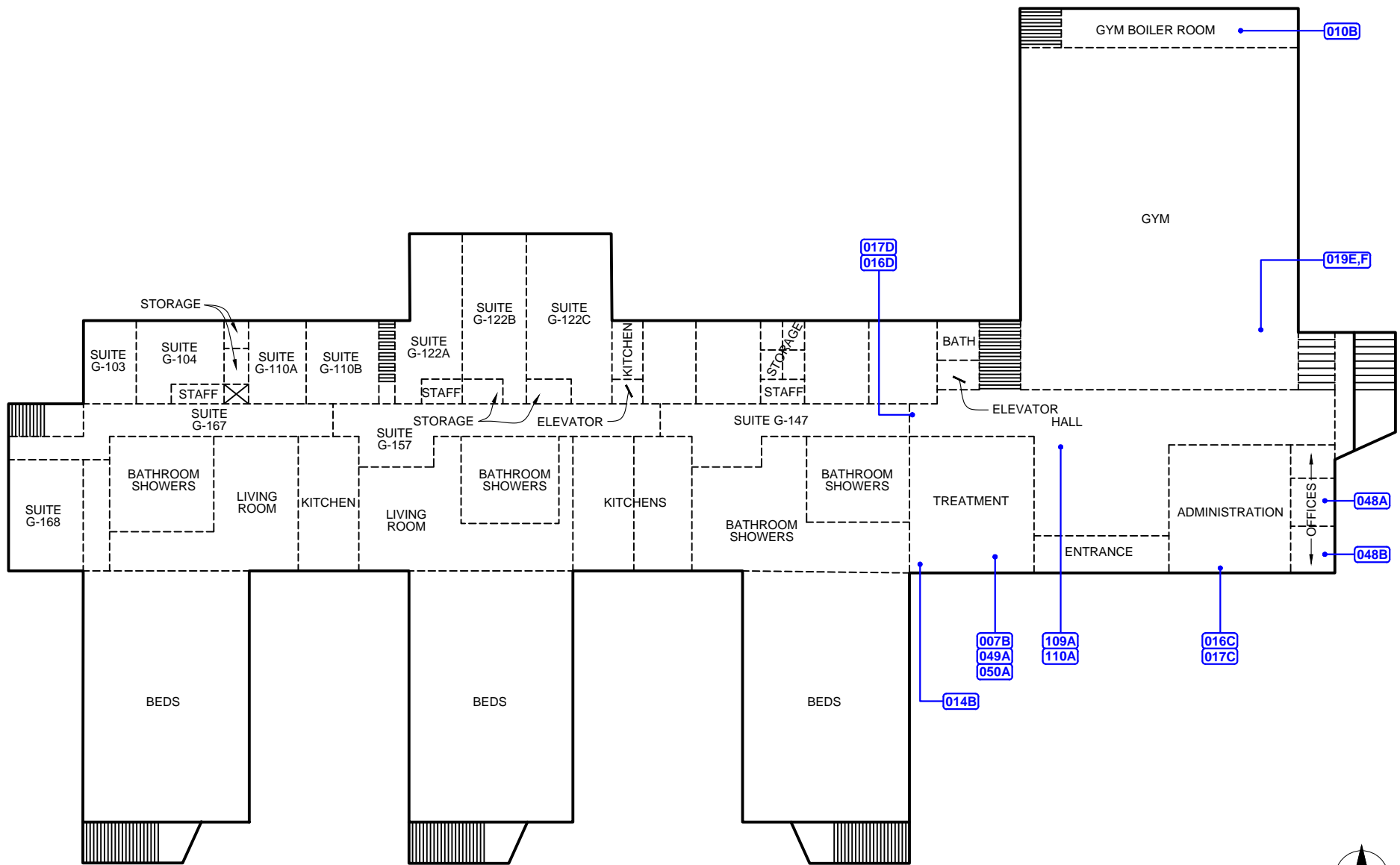



NOT TO SCALE

LEGEND	
001A	SAMPLE LOCATION

LOWER LEVEL
 200 TRAPELO RD.,
 WALTHAM, MA 02452


 Engineering, Fire &
 Environmental Services
 PN: 98350-06361 | **FIGURE**
 DT: 8/31/2017 | **1**
 DB: JE | CB: LM




NOT TO SCALE

LEGEND

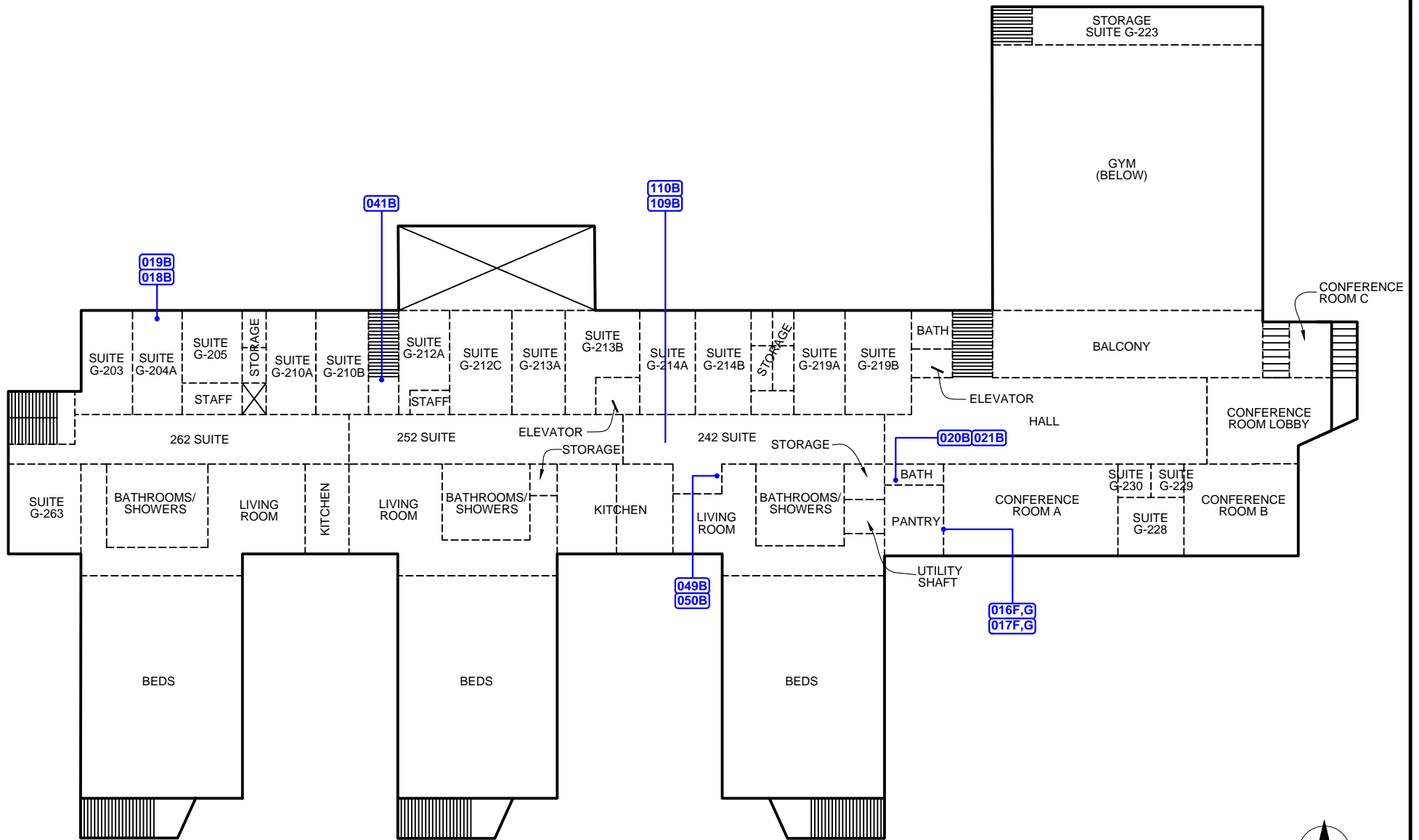
001A SAMPLE LOCATION

FIRST FLOOR

200 TRAPELO RD.,
WALTHAM, MA 02452



PN: 98350-06361	FIGURE
DT: 8/31/2017	2
DB: JE	CB: LM



NOT TO SCALE

LEGEND

001A SAMPLE LOCATION

SECOND FLOOR

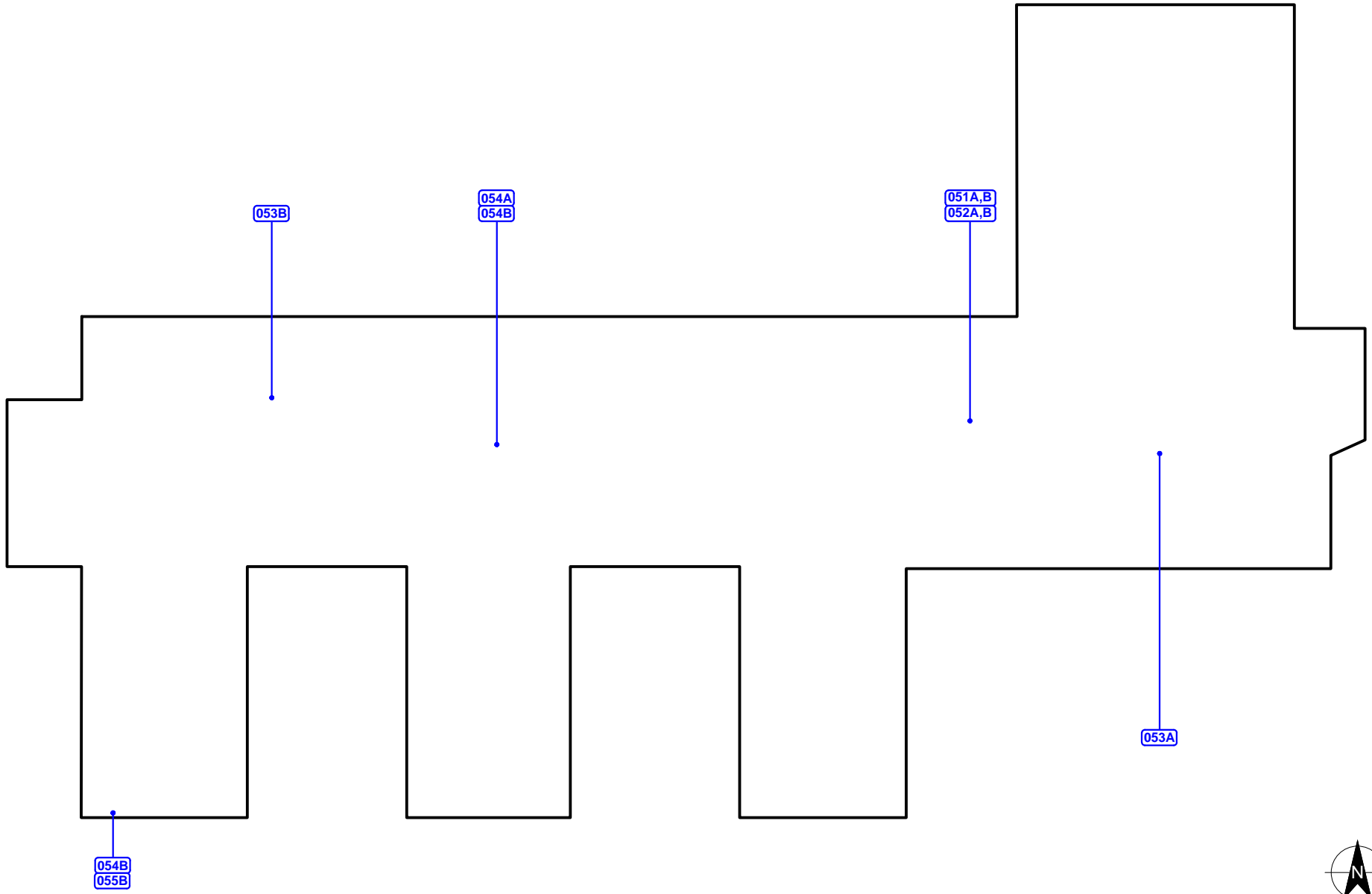
200 TRAPELO RD.,
WALTHAM, MA 02452



PN: 98350-06361
DT: 8/31/2017
DB: JE CB: LM

FIGURE

3



NOT TO SCALE

LEGEND

001A SAMPLE LOCATION

ROOF FLOOR

200 TRAPELO RD.,
WALTHAM, MA 02452



PN: 98350-06361
DT: 8/31/2017
DB: JE CB: LM

FIGURE

4

ATTACHMENT B

TABLES

Table 1

Asbestos-Containing Materials Inventory – Greene Building

Material Description	Material Location	Estimated Quantity
2'x2' pinhole cementitious ceiling tile	Pool Room	2,500 SF
Pipe insulation/elbows/tees & residual asbestos debris on piping (exposed, behind walls, & in crawlspaces)	Pool Room, Throughout Building	2,000 LF
Beige mottled floor tile and associated black mastic	Room G04, G05B,C	1,500 SF
Grey 9"x9" floor tile and associated black mastic	G-07	2,700 SF
Beige/ w/ black streak 9"x9" floor tile	G-07	300 SF
Tan pebble linoleum	108, 115B, 120B, 120A, 136, 166B, G07	3,200 SF
Green linoleum	G-07	50 SF
Black pipe flange gasketing	Mechanical Rooms	150 Units
Transite panels/wiring	1 st Floor Elevator Pump Room	50 SF
Exterior brown and beige vent caulk	Exterior	11 Vents

SF – square feet

LF – linear feet

Table 2
Hazardous Materials Inventory – Greene Building

Material Description (Hazard)	Material Location	Estimated Quantity
Fluorescent Light Tubes	Throughout Interior	1425 Units
Fluorescent Light Ballasts	Throughout Interior	725 Units
Emergency Exit Signs/Lights/Strobes	Throughout Interior	50 Units
Fire Extinguishers	Throughout Interior	20 Units
Refrigerator Units	Throughout Interior	5 Units
Hydraulic Doorstops/Closers	Throughout Interior	120 Units
Hydraulic Elevator Piston (Hydraulic Fluid)	1 st Floor Elevator Pump Room	1 Unit (200 Gal)
Mercury Switches	Throughout Interior	10 Units
Paint Cans/Containerized Wastes (Flammable Liquid)	Throughout Interior	5 Units
Petroleum Liquids/Containerized Wastes	Throughout Interior	11 Units
Smoke Alarms	Throughout Interior	155 Units
Fire Alarm Switches	Throughout Interior	150 Units
Transformers	Throughout Interior	14 Units
High Intensity Discharge Light (Mercury/PCBs)	Exterior	10 Unit
Refrigerants Associated With Rooftop & Pad Mounted HVAC Units (CFCs/Refrigerant)	Exterior	6 Units
Diesel Aboveground Storage Tank	Exterior	1 Unit (500 Gal)

TABLE 3 - PCB SAMPLING RESULTS

Con-Test Analytical Laboratory Analytical Testing Report Work Order: 1710448 Report Date: 9/25/2017 4:29:48 PM			Client: EFI Global Attention: John Vaz Project Name: Fernald School - Green Building - Waltham Project Number: 98350-06361						
<i>Note: This is not the original data. Please refer to PDF / Hardcopy report.</i>									
General Method	Analyte	Units							
LAB ID			1710448-01	1710448-02	1710448-03	1710448-04	1710448-05	1710448-06	
CLIENT ID			PCB-201	PCB-202	PCB-203	PCB-204	PCB-205	PCB-206	
DATE SAMPLED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	
DATE RECEIVED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	
MATRIX			Caulk	Caulk	Caulk	Caulk	Caulk	Caulk	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1016	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1221	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1232	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1242	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1248	mg/Kg	<0.76	<0.79	1.2	1.2	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1254	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1260	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1262	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1268	mg/Kg	<0.76	<0.79	<0.79	<0.79	<0.79	<0.78	

ATTACHMENT C

ASBESTOS LABORATORY REPORT



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703492

Customer ID: EAF166

Customer PO:

Project ID:

Attention: Lynda McDermott
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736

Fax: (978) 688-5494

Received Date: 08/07/2017 8:30 AM

Analysis Date: 08/09/2017

Collected Date:

Project: 98350-06351. Green building- Fernald School- Waltham, MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001A <small>131703492-0001</small>	pool - pool liner	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
001B <small>131703492-0002</small>	pool - pool liner	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
002A <small>131703492-0003</small>	pool - yellow rubber tile mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
002B <small>131703492-0004</small>	pool - yellow rubber tile mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003A <small>131703492-0005</small>	pool - purple cove base	Purple Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B <small>131703492-0006</small>	pool - purple cove base	Purple Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004A <small>131703492-0007</small>	pool - associated yellow cove base mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004B <small>131703492-0008</small>	pool - associated yellow cove base mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005A <small>131703492-0009</small>	pool - black cove base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005B <small>131703492-0010</small>	pool - black cove base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006A <small>131703492-0011</small>	pool - associated yellow cove base mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006B <small>131703492-0012</small>	pool - associated yellow cove base mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007A <small>131703492-0013</small>	pool, room 143 - interior white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007B <small>131703492-0014</small>	pool, room 143 - interior white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008A <small>131703492-0015</small>	pool - 2'x2' pinhole cementitious ceiling tile	Gray Fibrous Homogeneous		83% Non-fibrous (Other)	17% Chrysotile
008B <small>131703492-0016</small>	pool - 2'x2' pinhole cementitious ceiling tile				Positive Stop (Not Analyzed)

Initial report from: 08/09/2017 16:00:15



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<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703492
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
009A <small>131703492-0017</small>	pool - pipe insulation	White Fibrous Homogeneous		96% Non-fibrous (Other)	2% Amosite 2% Chrysotile
009B <small>131703492-0018</small>	pool - pipe insulation				Positive Stop (Not Analyzed)
009C <small>131703492-0019</small>	pool - pipe insulation				Positive Stop (Not Analyzed)
010A <small>131703492-0020</small>	hall A-1, gym boiler room - grey duct sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
010B <small>131703492-0021</small>	hall A-1, gym boiler room - grey duct sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
011A <small>131703492-0022</small>	hall A-1, room G-07 - glazed block grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
011B <small>131703492-0023</small>	hall A-1, room G-07 - glazed block grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
012A <small>131703492-0024</small>	hall A-I - grey pebble linoleum	Gray Fibrous Homogeneous	10% Cellulose 5% Synthetic 6% Glass	79% Non-fibrous (Other)	None Detected
012B <small>131703492-0025</small>	hall A-I - grey pebble linoleum	Gray Fibrous Homogeneous	10% Cellulose 5% Synthetic 5% Glass	80% Non-fibrous (Other)	None Detected
013A <small>131703492-0026</small>	hall A-I - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013B <small>131703492-0027</small>	hall A-I - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
014A <small>131703492-0028</small>	hall A-I, room 193 - grey seam caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
014B <small>131703492-0029</small>	hall A-I, room 193 - grey seam caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
015A <small>131703492-0030</small>	room G-27, room G54 - white interior door caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
015B <small>131703492-0031</small>	room G-27, room G54 - white interior door caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016A <small>131703492-0032</small>	hall A-1, rooms G-27, 134 - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016B <small>131703492-0033</small>	hall A-1, rooms G-27, 134 - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016C <small>131703492-0034</small>	hall A-1, rooms G-27, 134 - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016D <small>131703492-0035</small>	east stairwell 1st floor, 2nd floor hall - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 131703492

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
016E <small>131703492-0036</small>	east stairwell 1st floor, 2nd floor hall - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016F <small>131703492-0037</small>	3rd floor conference rooms - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016G <small>131703492-0038</small>	3rd floor conference rooms - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017A <small>131703492-0039</small>	hall A-1, rooms G-27, 134 - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017B <small>131703492-0040</small>	hall A-1, rooms G-27, 134 - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017C <small>131703492-0041</small>	hall A-1, rooms G-27, 134 - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017D <small>131703492-0042</small>	east stairwell 1st floor, 2nd floor hall - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017E <small>131703492-0043</small>	east stairwell 1st floor, 2nd floor hall - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017F <small>131703492-0044</small>	3rd floor conference rooms - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017G <small>131703492-0045</small>	3rd floor conference rooms - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018A <small>131703492-0046</small>	hall A-1, room 204A - sheetrock	White Fibrous Homogeneous	10% Cellulose 4% Glass	86% Non-fibrous (Other)	None Detected
018B <small>131703492-0047</small>	hall A-1, room 204A - sheetrock	Gray Fibrous Homogeneous	10% Cellulose 2% Glass	88% Non-fibrous (Other)	None Detected
019A <small>131703492-0048</small>	hall A-1, room G-54, G-35, G-05C - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019B <small>131703492-0049</small>	hall A-1, room G-54, G-35, G-05C - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019C <small>131703492-0050</small>	hall A-1, room G-54, G-35, G-05C - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019D <small>131703492-0051</small>	hall A-1, room G-54, G-35, G-05C - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019E <small>131703492-0052</small>	gym, room 204A - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019F <small>131703492-0053</small>	gym, room 204A - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 131703492
Customer ID: EAF166
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
019G <small>131703492-0054</small>	gym, room 204A - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
020A <small>131703492-0055</small>	rooms G-27, 240 - ceramic wall tile grout	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
020B <small>131703492-0056</small>	rooms G-27, 240 - ceramic wall tile grout	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
021A <small>131703492-0057</small>	rooms G-27, 240 - ceramic floor tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
021B <small>131703492-0058</small>	rooms G-27, 240 - ceramic floor tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
022A <small>131703492-0059</small>	room G-54 - faux wood flooring	Tan Fibrous Homogeneous	2% Synthetic	98% Non-fibrous (Other)	None Detected
022B <small>131703492-0060</small>	room G-54 - faux wood flooring	Brown Fibrous Homogeneous	2% Synthetic	98% Non-fibrous (Other)	None Detected
023A <small>131703492-0061</small>	room G-49, G-48 - 6" brown cove base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
023B <small>131703492-0062</small>	room G-49, G-48 - 6" brown cove base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
024A <small>131703492-0063</small>	room G-49, G-48 - associated yellow cove base adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
024B <small>131703492-0064</small>	room G-49, G-48 - associated yellow cove base adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
025A <small>131703492-0065</small>	room G-55, 101CE - tan sheet linoleum	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
025B <small>131703492-0066</small>	room G-55, 101CE - tan sheet linoleum	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
026A <small>131703492-0067</small>	room G-55, 101CE - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
026B <small>131703492-0068</small>	room G-55, 101CE - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
027A <small>131703492-0069</small>	room G-55, 101CE - white sink undercoat	White Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
027B <small>131703492-0070</small>	room G-55, 101CE - white sink undercoat	White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
028A <small>131703492-0071</small>	room G-63 - red duct sealant	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
028B <small>131703492-0072</small>	room G-63 - red duct sealant	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 16:00:15



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EMSL Order: 131703492

Customer ID: EAF166

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
029A 131703492-0073	room G-35 - brown 4" cove base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
029B 131703492-0074	room G-35 - brown 4" cove base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
030A 131703492-0075	room G-35 - associated yellow cove base adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
030B 131703492-0076	room G-35 - associated yellow cove base adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
031A 131703492-0077	room G-05B, G-04 - 12"x12" beige mottled floor tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
031B 131703492-0078	room G-05B, G-04 - 12"x12" beige mottled floor tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
032A 131703492-0079	room G-05B, G-04 - associated black mastic	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
032B 131703492-0080	room G-05B, G-04 - associated black mastic				Positive Stop (Not Analyzed)
033A 131703492-0081	room G-07 - 9"x9" grey floor tile	Gray Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
033B 131703492-0082	room G-07 - 9"x9" grey floor tile				Positive Stop (Not Analyzed)
034A 131703492-0083	room G-07 - associated black mastic	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
034B 131703492-0084	room G-07 - associated black mastic				Positive Stop (Not Analyzed)
035A 131703492-0085	room G-07 - 9"x9" beige w/ black streak floor tile	Beige Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
035B 131703492-0086	room G-07 - 9"x9" beige w/ black streak floor tile				Positive Stop (Not Analyzed)
036A 131703492-0087	room G-07 - associated black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
036B 131703492-0088	room G-07 - associated black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
037A 131703492-0089	room G-07 - tan pebble linoleum	Tan Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
037B 131703492-0090	room G-07 - tan pebble linoleum				Positive Stop (Not Analyzed)
038A 131703492-0091	room G-07 - associated beige adhesive	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 16:00:15



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EMSL Order: 131703492
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
038B <small>131703492-0092</small>	room G-07 - associated beige adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
039A <small>131703492-0093</small>	room G-07 - green linoleum	Green Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
039B <small>131703492-0094</small>	room G-07 - green linoleum				Positive Stop (Not Analyzed)
040A <small>131703492-0095</small>	room G-07 - associated backing	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
040B <small>131703492-0096</small>	room G-07 - associated backing	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
041A <small>131703492-0097</small>	room G-07, 3rd floor stairwell - grey terrazzo flooring	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
041B <small>131703492-0098</small>	room G-07, 3rd floor stairwell - grey terrazzo flooring	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
042A <small>131703492-0099</small>	room G-07 - brown glue daubs associated with room G-07	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
042B <small>131703492-0100</small>	room G-07 - brown glue daubs associated with room G-07	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
043A <small>131703492-0101</small>	room G-07 - 1x1 pinhole spline ceiling tiles	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
043B <small>131703492-0102</small>	room G-07 - 1x1 pinhole spline ceiling tiles	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
044A <small>131703492-0103</small>	room G-07 - glue daubs associated with 43 A,B	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
044B <small>131703492-0104</small>	room G-07 - glue daubs associated with 43 A,B	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
045A <small>131703492-0105</small>	room G-47 - pink pebble linoleum	Pink Fibrous Homogeneous	5% Cellulose 5% Synthetic	90% Non-fibrous (Other)	None Detected
045B <small>131703492-0106</small>	room G-47 - pink pebble linoleum	Pink Fibrous Homogeneous	5% Cellulose 5% Synthetic	90% Non-fibrous (Other)	None Detected
046A <small>131703492-0107</small>	room G-100 - black ceramic floor tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
046B <small>131703492-0108</small>	room G-100 - black ceramic floor tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
047A <small>131703492-0109</small>	room G-08 - pipe fitting mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 16:00:15



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com / bostonlab@emsl.com>

EMSL Order: 131703492

Customer ID: EAF166

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
047B 131703492-0110	room G-08 - pipe fitting mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
048A 131703492-0111	room 132B, 132A - yellow carpet mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
048B 131703492-0112	room 132B, 132A - yellow carpet mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
049A 131703492-0113	room 143, 241 - dark grey pebble linoleum	Gray Fibrous Homogeneous	8% Synthetic	92% Non-fibrous (Other)	None Detected
049B 131703492-0114	room 143, 241 - dark grey pebble linoleum	Gray Fibrous Homogeneous	8% Synthetic	92% Non-fibrous (Other)	None Detected
050A 131703492-0115	room 143, 241 - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
050B 131703492-0116	room 143, 241 - associated yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
051A 131703492-0117	roof - black duct covering	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
051B 131703492-0118	roof - black duct covering	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
052A 131703492-0119	roof - vibe cloth	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
052B 131703492-0120	roof - vibe cloth	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
053A 131703492-0121	roof - black seam sealant	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
053B 131703492-0122	roof - black seam sealant	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
054A 131703492-0123	roof - black roof tar	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
054B 131703492-0124	roof - black roof tar	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
055A 131703492-0125	roof - yellow rubber roofing adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
055B 131703492-0126	roof - yellow rubber roofing adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
056A 131703492-0127	exterior - white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
056B 131703492-0128	exterior - white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 16:00:15



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EMSL Order: 131703492
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
057A <i>131703492-0129</i>	exterior - beige door caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
057B <i>131703492-0130</i>	exterior - beige door caulk	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
058A <i>131703492-0131</i>	exterior - grey building seam caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
058B <i>131703492-0132</i>	exterior - grey building seam caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
059A <i>131703492-0133</i>	exterior - beige vent caulk- top layer	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
059B <i>131703492-0134</i>	exterior - beige vent caulk- top layer	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
060A <i>131703492-0135</i>	exterior - brown vent caulk-bottom layer	Brown Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
060B <i>131703492-0136</i>	exterior - brown vent caulk-bottom layer				Positive Stop (Not Analyzed)
061A <i>131703492-0137</i>	exterior - brink	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
061B <i>131703492-0138</i>	exterior - brink	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
062A <i>131703492-0139</i>	exterior - mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
062B <i>131703492-0140</i>	exterior - mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) _____

Elizabeth Stutts (130)

Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/09/2017 16:00:15

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
 www.efiglobal.com

131703492



BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name): John Vaz	Bill To: Accounts Payable
Company: EFI Global, Inc.	Address: Same
Address: 155 West Street	City, State, Zip: Same
Suite 6	Telephone: 800-659-1202
City, State, Zip: Wilmington, MA 01887	Fax: 978-688-5494

Project Information

Project No./ Description: 98350-06351	Green Building - Fernald School - Waltham MA.
Email Report to: Lynda McDermott@efiglobal.com	john - vaz@efiglobal.com
Alternate: sean_cassidy@efiglobal.com	

Requested Turnaround Time:

RUSH
 1 day
 2 day
 3 day
 5 day

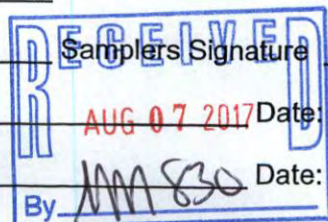
Media and Methodology

Type of Analysis: PLM - Asbestos	Check for Positive Stop: <input checked="" type="checkbox"/>
Notes: Analyze all plaster and joint compound samples	Date Collected: 8/1 - 8/2/17

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
001 A,B	Pool Liner	Pool		
002 A,B	Yellow Rubber Tile Mastic	Pool		
003 A,B	Purple Cove Base	Pool		
004 A,B	Yellow Core Base Mastic	Pool		
005 A,B	Black Cove Base	Pool		
006 A,B	Associated yellow Core Base Mastic	Pool		
007 A,B	Interior White Window Caulk	Pool, Room 143		
008 A,B	2'x2' Pinhole Cementitious Ceiling Tile	Pool		
009 A,B,C	Pipe Insulation	Pool		
010 A,B	Grey Duct Sealant	Hall A-1, Gym Boiler Room		
011 A,B	Glazed Black Grout	Hall A-1, Room G-07		

Total Number of Samples Submitted: _____

Samplers Name: John Vaz
 Relinquished By (Client): _____
 Received By (Lab): _____



Samplers Signature: _____
 Time: _____
 Time: _____

131703492

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EFI Global

Engineering, Fire &
 Environmental Services

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
012A,B	Grey Pebble Linoleum.	Hall A-1		
013A,B	Associated Yellow Mastic	Hall A-1		
014A,B	Grey Seam Caulk.	Hall A-1, Room 193		
015A,B	White Interior Door Caulk.	Room G-27, Room G-54		
016A,B,C	Grey Base Coat Plaster.	Hall A-1, Rooms G-27, 134,		
016D,E	Grey Base Coat Plaster	East stairwell 1 st Floor, 2 nd Floor Hall		
016F,G	Grey Base Coat Plaster.	3 rd Floor Conference Rooms.		
017A,B,C	White Skim Coat Plaster	Hall A-1, Rooms G-27, 134		
017D,E	" " " "	East stairwell 1 st Floor, 2 nd Floor Hall		
017F,G	" " " "	3 rd Floor Conference Rooms.		
018A,B	Sheetrock.	Hall A-1, Room 204A		
019A,B,C,D	Joint Compound	Hall A-1, Rooms G-54, G-35, G-05C		
019E,F,G	" "	Gym, Room 204A.		
020A,B	Ceramic Wall Tile Grout	Rooms G-27, 240		
021A,B	Ceramic Floor Tile Grout	" " "		
022A,B	Faux Wood Flooring	Room G-54.		
023A,B	6" Brown Core Base.	Room G-49, G-48		
024A,B	Associated yellow Core Base Mastic	" " "		
025A,B	Ten Sheet Linoleum	Rooms G-55, 101CE		
026A,B	Associated Yellow Mastic.	" " "		
027A,B	White Sink Undercoat	" " "		
028A,B	Red Duct Sealant	Room G-63		
029A,B	Brown 4" Core Base	Room G-35		
030A,B	Associated yellow core base adhesive.	" "		
031A,B	12"x12" Beige Mottled Floor Tile	Rooms G-05B, G-04		
032A,B	Associated Black Mastic	" " "		

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 AUG 07 2017
 Page 2 of 4
 By MM830

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Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
033 A,B	9"x9" Grey Floor Tile.	Room G-07		
034 A,B	Associated Black Mastic	" "		
035 A,B	9"x9" Beige w/Black Streak Floor Tile	" "		
036 A,B	Associated Black Mastic	" "		
037 A,B	Tan Pebble Linoleum.	" "		
038 A,B	Associated Beige Adhesive.	" "		
039 A,B	Green Linoleum	" "		
040 A,B	Associated Backing.	" "		
041 A,B	Grey Terrazzo Flooring	" " 3 RD Floor Stairwell.		
042 A,B	Brown Glue Panels Associated with 1x1 Pinhole Fiberglass Ceiling Tiles.	Room G-07		
043 A,B	1x1 Pinhole Spline Ceiling Tiles	" "		
044 A,B	Glue Panels associated with 43 A,B.	" "		
045 A,B	Pink Pebble Linoleum.	Room G-47		
046 A,B	Black Ceramic Floor Tile Grout	Room G-100		
047 A,B	Pipe Fitting Mud	Room G-08		
048 A,B	Yellow Carpet Mastic	Room 132B, 132A		
049 A,B	Dark Grey Pebble Linoleum.	Room 143, 241		
050 A,B	Associated yellow glue Mastic.	" " "		
051 A,B	Black Duct Covering	Roof		
052 A,B	Vibe Cloth.	Roof		
053 A,B	Black Seam Sealant	Roof		
054 A,B	Black Roof Tar	Roof		
055 A,B	Yellow Rubber Roofing Adhesive.	Roof		
056 A,B	White Window Caulk	Exterior		
057 A,B	Beige Door Caulk	"		

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 AUG 07 2017
 By: MM 850

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Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
058 A, B	Grey Building Seam Caulk.	Exterior		
059 A, B	Beige Vent Caulk - Top Layer	"		
060 A, B	Brown Vent Caulk - Bottom Layer	"		
061 A, B	Brick	"		
062 A, B	Mortar	"		

Project Number/Description 98350-06351 Green Building Page 4 of 4





EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703817

Customer ID: EAF166

Customer PO:

Project ID:

Attention: Sean Cassidy
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 886-3712

Fax: (978) 688-5494

Received Date: 08/24/2017 8:54 AM

Analysis Date: 08/24/2017

Collected Date: 08/23/2017

Project: 98350-06351 / Greene Building - Fernald School

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
101A <small>131703817-0001</small>	1st FI Mechanical Room - White Tank Insulation	Gray/White Fibrous Homogeneous	10% Cellulose 10% Min. Wool	80% Non-fibrous (Other)	None Detected
101B <small>131703817-0002</small>	1st FI Mechanical Room - White Tank Insulation	Gray Fibrous Homogeneous	10% Cellulose 5% Glass	85% Non-fibrous (Other)	None Detected
101C <small>131703817-0003</small>	1st FI Mechanical Room - White Tank Insulation	Gray Fibrous Homogeneous	10% Cellulose 5% Min. Wool	85% Non-fibrous (Other)	None Detected
102A <small>131703817-0004</small>	1st FI Mechanical Room - Spray-on Fireproofing	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
102B <small>131703817-0005</small>	1st FI Mechanical Room - Spray-on Fireproofing	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
102C <small>131703817-0006</small>	1st FI Mechanical Room - Spray-on Fireproofing	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
102D <small>131703817-0007</small>	1st FI Mechanical Room - Spray-on Fireproofing	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
102E <small>131703817-0008</small>	1st FI Mechanical Room - Spray-on Fireproofing	White Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
103A <small>131703817-0009</small>	1st FI Mechanical Room - Boiler Exhaust Insulation	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
103B <small>131703817-0010</small>	1st FI Mechanical Room - Boiler Exhaust Insulation	Gray Fibrous Homogeneous	20% Glass	80% Non-fibrous (Other)	None Detected
103C <small>131703817-0011</small>	1st FI Mechanical Room - Boiler Exhaust Insulation	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
104A <small>131703817-0012</small>	1st FI Mechanical Room - Black Flange Gasketing	Green Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
104B <small>131703817-0013</small>	1st FI Mechanical Room - Black Flange Gasketing	Gray Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
105A <small>131703817-0014</small>	1st FI Mechanical Room - White Flange Gasketing	White Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
105B <small>131703817-0015</small>	1st FI Mechanical Room - White Flange Gasketing	White Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
106A <small>131703817-0016</small>	1st FI Mechanical Room - Textured Paint	White/Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/25/2017 07:35:23



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EMSL Order: 131703817
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
106B <i>131703817-0017</i>	1st FI Mechanical Room - Textured Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
106C <i>131703817-0018</i>	1st FI Mechanical Room - Textured Paint	White/Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
106D <i>131703817-0019</i>	1st FI Mechanical Room - Textured Paint	White/Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
106E <i>131703817-0020</i>	1st FI Mechanical Room - Textured Paint	White/Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
107A <i>131703817-0021</i>	Exterior Front Door - White Skim Coat on Handicap Ramp	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
107B <i>131703817-0022</i>	Exterior Front Door - White Skim Coat on Handicap Ramp	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
107C <i>131703817-0023</i>	Exterior Front Door - White Skim Coat on Handicap Ramp	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
108A <i>131703817-0024</i>	2nd FI Hall by Gym - Grey Pebble Linoleum	Gray Fibrous Homogeneous	10% Synthetic	90% Non-fibrous (Other)	None Detected
108B <i>131703817-0025</i>	3rd Floor 242 Suite - Grey Pebble Linoleum	Gray Fibrous Homogeneous	10% Synthetic	90% Non-fibrous (Other)	None Detected
109A <i>131703817-0026</i>	2nd FI Hall by Gym - Associated Yellow Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109B <i>131703817-0027</i>	3rd Floor 242 Suite - Associated Yellow Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110A <i>131703817-0028</i>	1st FI Mechanical Room - Mud on Fiberglass Pipe Insulation	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110B <i>131703817-0029</i>	1st FI Mechanical Room - Mud on Fiberglass Pipe Insulation	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Elizabeth Stutts (29)

Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/25/2017 07:35:23



155 West Street
 Suite 6
 Wilmington, MA 01887
 Tel: 978-688-3736
 Tel: 800-659-1202
 Fax: 978-688-5494
 www.efiglobal.com

BULK SAMPLE CHAIN OF CUSTODY FORM

Your Name: Sean Cassidy	Bill to: Same
Company: EFI Global, Inc.	Address:
Address: 155 West Street	
Suite 6	City/State: _____ Zip: _____
City/State: Wilmington, Massachusetts Zip: 01887	PO #:

Project Information

Project #/Name: 94350-06351 Greene Building - Fennel School
 Results To: sean_cassidy@efiglobal.com Tel: (978) 688-3736
 Alternate: lynda_mcdermott@efiglobal.com Fax: (978) 688-5954

Requested Turnaround Time

RUSH 1 Day 2 Day 3 Day 5 Day

Media and Methodology

Type of Analysis: PLM - Asbestos Positive Stop: Y N
 DATE COLLECTED: 8/23/17 Note: Analyze all plaster and joint compound samples.

SAMPLE NUMBER	TYPE OF MATERIAL	SAMPLE LOCATION	Homogeneous Area #
101 A,B,C	White Tank Insulation	1 ST FL Mechanical Room	
102 A,B,C,D,E	Spray on Fireproofing	" " "	
103 A,B,C	Boiler Exhaust Insulation	" " "	
104 A,B	Black Flange Gasketing	" " "	
105 A,B	White Flange Gasketing	" " "	
106 A,B,C,D,E	Textured Paint	" " "	
107 A,B,C	White Skim Coat on Handicap Ramp	Exterior Front Door	
108 A,B	Grey Pebble Linoleum	2 ND FL Hall By Gym; 3 RD Floor 242 Suite	
109 A,B	Associated Yellow Adhesive	" " " " " " " "	
110 A,B	Mud on Fiberglass Pipe Insulation	1 ST FL Mechanical Room	

Total Number of Samples Submitted: _____

Signatures

Relinquished By: vs FedEx Date: 8/23/17 Time: 1600

Received By: _____ Date: _____ Time: _____

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

FedEx
7700
9405
3297

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AUG 24 2017

By: MM 0854

ATTACHMENT D

LEAD LABORATORY REPORT



EMSL Analytical, Inc.

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>

carleplacelab@emsl.com

EMSL Order:	061713427
CustomerID:	EAFI66
CustomerPO:	98350-06351
ProjectID:	

Attn: **Lynda McDermott**
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736
 Fax: (978) 688-5494
 Received: 08/08/17 9:37 AM
 Collected: 8/1/2017

Project: **Project No: 98350-06351, Green Building-Fernald School, Waltham, MA**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
PB01 Site: Pool Desc: Teal Paint on Concrete	061713427-0001	8/1/2017	8/11/2017	0.0090 % wt
PB02 Site: Pool Desc: Purple Paint on Pool	061713427-0002	8/1/2017	8/11/2017	0.066 % wt
PB03 Site: Hall A-2 Desc: Blue Paint on Plaster	061713427-0003	8/1/2017	8/11/2017	<0.0080 % wt
PB04 Site: Hall A-2 Desc: Beige Paint on Plaster	061713427-0004	8/1/2017	8/11/2017	<0.0080 % wt
PB05 Site: Room G-35 Desc: Orange Paint on Concrete	061713427-0005	8/1/2017	8/11/2017	<0.010 % wt
PB06 Site: Room G-35 Desc: Blue Paint on Concrete	061713427-0006	8/1/2017	8/11/2017	<0.015 % wt
PB07 Site: Room G-35 Desc: Red Paint on Concrete	061713427-0007	8/1/2017	8/11/2017	0.0090 % wt
PB08 Site: G-008B Desc: White Paint on Concrete Ceiling	061713427-0008	8/1/2017	8/11/2017	<0.0080 % wt
PB09 Site: Room 134 Desc: Brown Paint on Sheetrock	061713427-0009	8/1/2017	8/11/2017	<0.0080 % wt
PB10 Site: Room 136 Desc: Pink Paint on Plaster	061713427-0010	8/1/2017	8/11/2017	<0.0080 % wt

Michelle McGowan, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY Lab ID 102344 is accredited by the AIHA-LAP, LLC in the Environmental Lead accreditation program for Lead in Paint, CT PH-0249, NYS ELAP 11469

Initial report from 08/11/2017 14:46:57

061713427

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
www.efiglobal.com

EFI Global[®]
 Engineering, Fire &
 Environmental Services

BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name):	John Vcz	Bill To:	Accounts Payable
Company:	EFI Global, Inc.	Address:	Same
Address:	155 West Street	City, State, Zip:	Same
	Suite 6	Telephone:	800-659-1202
City, State, Zip:	Wilmington, MA 01887	Fax:	978-688-5494
Project Information			
Project No./ Description:	98350- 06351. Green Building - Fernald School Waltham MA		
Email Report to:	Lynda McDermott@efiglobal.com john-vcz@efiglobal.com		
Alternate:	sean_cassidy@efiglobal.com		
Requested Turnaround Time:			
<input type="checkbox"/> RUSH	<input type="checkbox"/> 1 day	<input type="checkbox"/> 2 day	<input checked="" type="checkbox"/> 5 day
Media and Methodology			
Type of Analysis:	PB - Flame AAS R		Check for Positive Stop: <input type="checkbox"/>
Notes:	Analyze all plaster and joint compound samples	Date Collected:	8/1-8/2/17

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
PB01	Teal Paint on Concrete	Pool		
PB02	Purple Paint on Pool	"		
PB03	Blue Paint on Plaster	Hall A-2		
PB04	Beige Paint on Plaster	" "		
PB05	Orange Paint on Concrete	Room G-35	17 AUG 18	ENSL AHEAD TITANUM CARLISLE MASS
PB06	Blue Paint on Concrete	" "		
PB07	Red " " "	" "		
PB08	White Paint on Concrete Ceiling	G-008B	17 AUG 18 11:09:37	
PB09	Brown Paint on Sheetrock	Room 134		
PB10	Pink Paint on Plaster	Room 136		

PB-A-Jung 08/11/17

Total Number of Samples Submitted: _____

Samplers Name: John Vcz Samplers Signature:

Relinquished By (Client): Date: _____ Time: _____

Received By (Lab): Date: 8-8-17 Time: 9:30 AM

RECEIVED

AUG 07 2017

By: MS30

ATTACHMENT E

PHOTOGRAPHS

Photographs



Pool area. Note pool liner, rubber tile mastic, textured paint, and black cove base and associated adhesive.



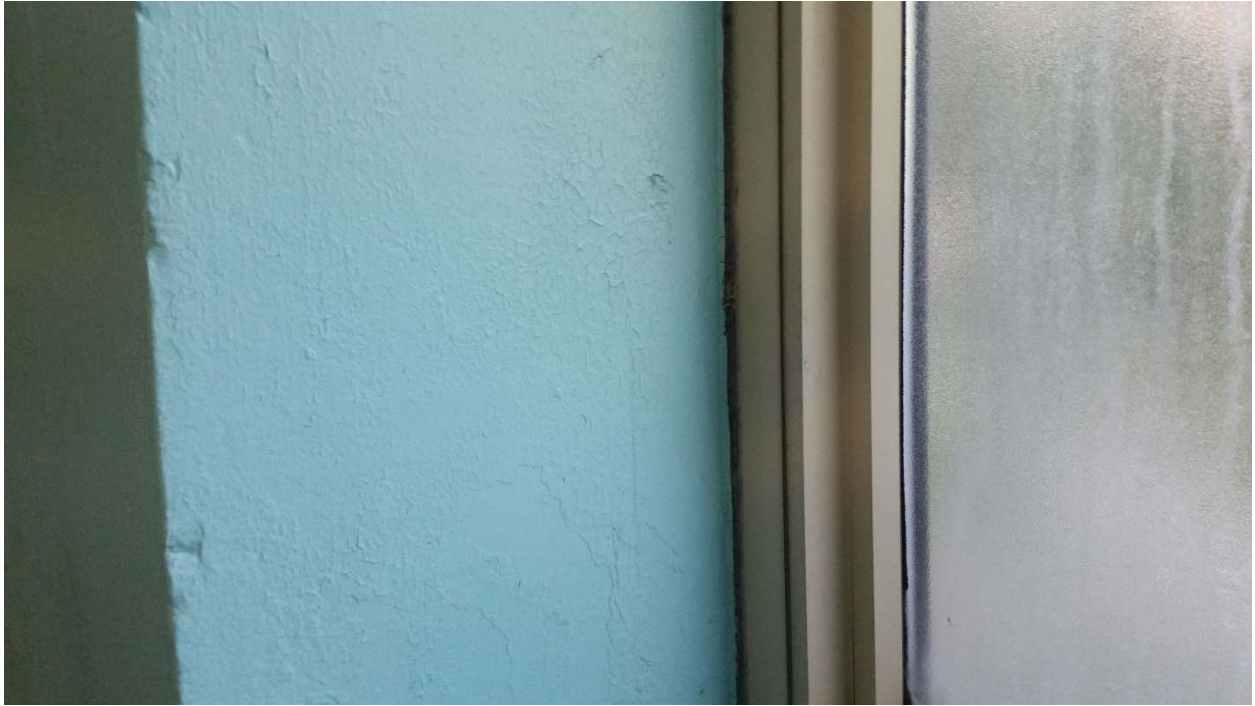
ACM 2'x2' pinhole cementitious ceiling tiles



ACM pipe insulation



Grey pebble linoleum in Hallway A-1



White interior window caulk



Sheetrock and joint compound walls



Faux wood flooring



Plaster walls, glazed block walls, and black cove base and associated adhesive



White sink undercoating



Brown glue daubs associated with 1'x1' fiberglass pinhole spline ceiling tiles



ACM 9"x9" grey floor tile and associated ACM black mastic



ACM 9"x9" beige with black streak floor tile and associated ACM black mastic.



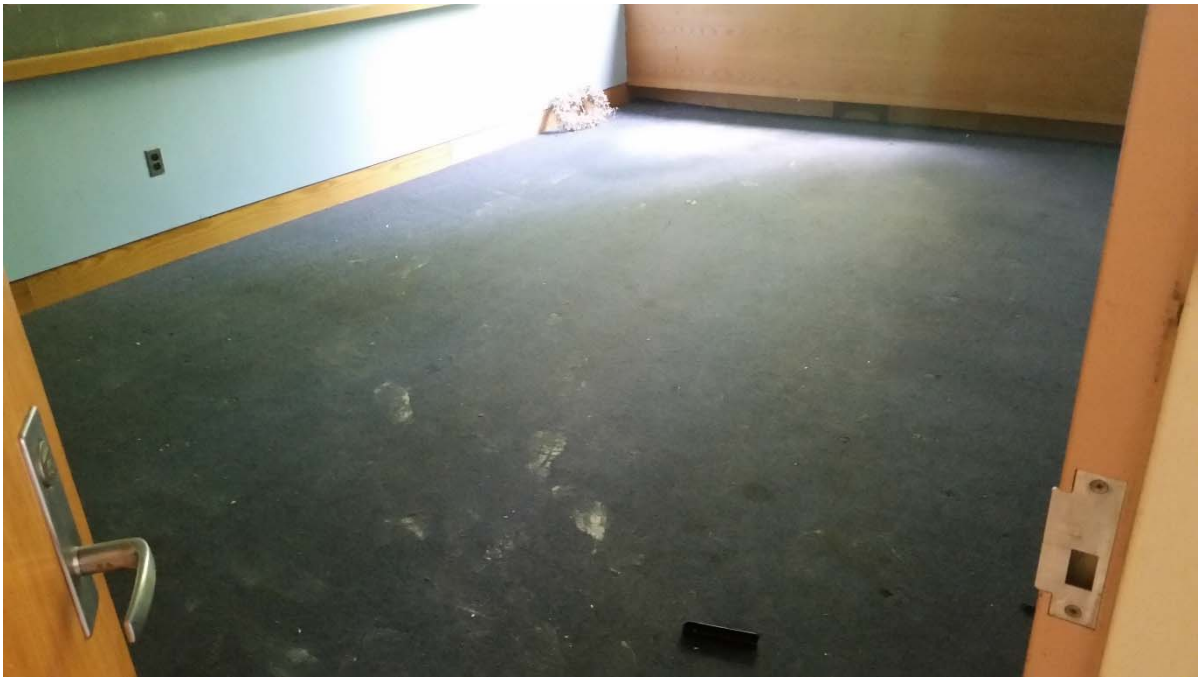
ACM tan pebble linoleum in G-07



ACM green linoleum and associated non-ACM backing



Pink pebble linoleum



Yellow carpet mastic (beneath carpet)



Rubber roofing adhesive and black roof tar



Black viber cloth



Black duct covering



Terrazzo flooring



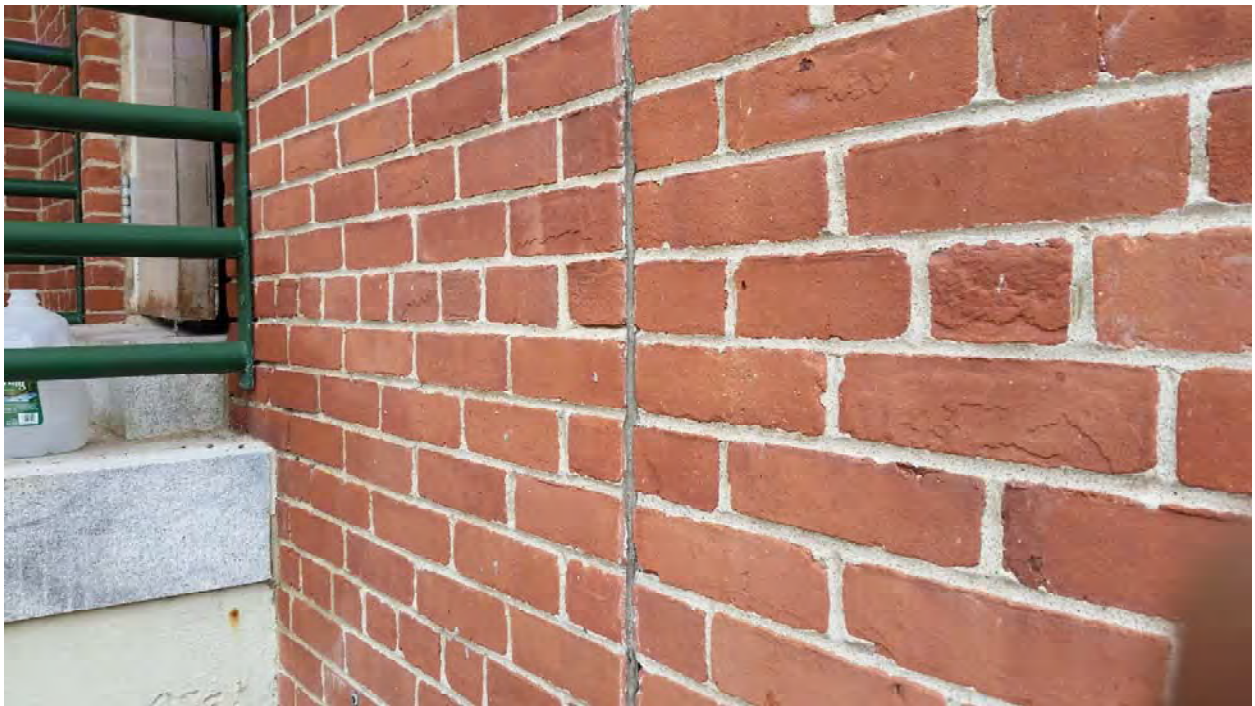
Dark grey pebble linoleum



Non ACM beige vent caulk (top layer) and ACM brown vent caulk (bottom layer)



Exterior white window caulk, brick, and mortar



Grey building seam caulk



Beige door caulk

ATTACHMENT F

PCB LABORATORY REPORT

September 25, 2017

John Vaz
EFI Global
155 West Street
Wilmington, MA 01887

Project Location: Fernald School-Green Bldg, Waltham
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 17I0448

Enclosed are results of analyses for samples received by the laboratory on September 12, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive style with a large, prominent 'K' and 'M'.

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EFI Global
155 West Street
Wilmington, MA 01887
ATTN: John Vaz

REPORT DATE: 9/25/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 1710448

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Fernald School-Green Bldg, Waltham

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCB-201	1710448-01	Caulk		SW-846 8082A	
PCB-202	1710448-02	Caulk		SW-846 8082A	
PCB-203	1710448-03	Caulk		SW-846 8082A	
PCB-204	1710448-04	Caulk		SW-846 8082A	
PCB-205	1710448-05	Caulk		SW-846 8082A	
PCB-206	1710448-06	Caulk		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:**Aroclor-1016**

B186218-BSD1

Aroclor-1016 [2C]

B186218-BSD1

Aroclor-1260

B186218-BSD1

Aroclor-1260 [2C]B186218-BSD1

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:1710448-01[PCB-201], 1710448-02RE1[PCB-202], 1710448-05[PCB-205], 1710448-06[PCB-206]

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Aroclor-1016**

B186218-BLK1, B186218-BS1

Aroclor-1016 [2C]

B186218-BLK1, B186218-BS1

Aroclor-1260

B186218-BLK1, B186218-BS1

Aroclor-1260 [2C]B186218-BLK1, B186218-BS1

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:**Tetrachloro-m-xylene**

B186218-BSD1

Tetrachloro-m-xylene [2C]

B186218-BSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopycinski". The signature is written in a cursive style with a large, sweeping initial "T".

Tod E. Kopycinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Green Bldg, Waltham Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-201

Sampled: 9/12/2017 13:45

Sample ID: 1710448-01

Sample Matrix: Caulk

Sample Flags: O-32

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1221 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1232 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1242 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1248 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1254 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1260 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1262 [1]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Aroclor-1268 [2]	ND	0.76	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:02	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		62.8	30-150					9/19/17 16:02	
Decachlorobiphenyl [2]		51.8	30-150					9/19/17 16:02	
Tetrachloro-m-xylene [1]		48.2	30-150					9/19/17 16:02	
Tetrachloro-m-xylene [2]		41.8	30-150					9/19/17 16:02	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Green Bldg, Waltham Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-202

Sampled: 9/12/2017 13:45

Sample ID: 1710448-02

Sample Matrix: Caulk

Sample Flags: O-32

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1221 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1232 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1242 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1248 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1254 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1260 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1262 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Aroclor-1268 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:32	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		92.9	30-150					9/21/17 18:32	
Decachlorobiphenyl [2]		93.8	30-150					9/21/17 18:32	
Tetrachloro-m-xylene [1]		102	30-150					9/21/17 18:32	
Tetrachloro-m-xylene [2]		94.4	30-150					9/21/17 18:32	

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Project Location: Fernald School-Green Bldg, Walth

Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-203

Sampled: 9/12/2017 13:50

Sample ID: 1710448-03

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1221 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1232 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1242 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1248 [1]	1.2	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1254 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1260 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1262 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Aroclor-1268 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/20/17	9/21/17 18:49	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		67.2	30-150					9/21/17 18:49	
Decachlorobiphenyl [2]		68.5	30-150					9/21/17 18:49	
Tetrachloro-m-xylene [1]		96.1	30-150					9/21/17 18:49	
Tetrachloro-m-xylene [2]		88.1	30-150					9/21/17 18:49	

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Project Location: Fernald School-Green Bldg, Waltham

Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-204

Sampled: 9/12/2017 13:50

Sample ID: 1710448-04

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1221 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1232 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1242 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1248 [1]	1.2	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1254 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1260 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1262 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Aroclor-1268 [2]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 16:56	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		76.7	30-150					9/19/17 16:56	
Decachlorobiphenyl [2]		68.4	30-150					9/19/17 16:56	
Tetrachloro-m-xylene [1]		76.4	30-150					9/19/17 16:56	
Tetrachloro-m-xylene [2]		70.9	30-150					9/19/17 16:56	

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Project Location: Fernald School-Green Bldg, Walth

Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-205

Sampled: 9/12/2017 14:00

Sample ID: 1710448-05

Sample Matrix: Caulk

Sample Flags: O-32

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1221 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1232 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1242 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1248 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1254 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1260 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1262 [1]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Aroclor-1268 [2]	ND	0.79	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:13	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		122	30-150					9/19/17 17:13	
Decachlorobiphenyl [2]		101	30-150					9/19/17 17:13	
Tetrachloro-m-xylene [1]		100	30-150					9/19/17 17:13	
Tetrachloro-m-xylene [2]		104	30-150					9/19/17 17:13	

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Project Location: Fernald School-Green Bldg, Walth

Sample Description:

Work Order: 1710448

Date Received: 9/12/2017

Field Sample #: PCB-206

Sampled: 9/12/2017 14:00

Sample ID: 1710448-06

Sample Matrix: Caulk

Sample Flags: O-32

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1221 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1232 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1242 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1248 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1254 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1260 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1262 [1]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Aroclor-1268 [2]	ND	0.78	mg/Kg	4		SW-846 8082A	9/14/17	9/19/17 17:31	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		136	30-150					9/19/17 17:31	
Decachlorobiphenyl [2]		107	30-150					9/19/17 17:31	
Tetrachloro-m-xylene [1]		107	30-150					9/19/17 17:31	
Tetrachloro-m-xylene [2]		110	30-150					9/19/17 17:31	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data**Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17I0448-01 [PCB-201]	B186218	0.524	10.0	09/14/17
17I0448-04 [PCB-204]	B186218	0.505	10.0	09/14/17
17I0448-05 [PCB-205]	B186218	0.508	10.0	09/14/17
17I0448-06 [PCB-206]	B186218	0.510	10.0	09/14/17

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17I0448-02RE1 [PCB-202]	B186679	0.507	10.0	09/20/17
17I0448-03RE1 [PCB-203]	B186679	0.508	10.0	09/20/17

QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B186218 - SW-846 3540C										
Blank (B186218-BLK1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	ND	0.20	mg/Kg							R-05
Aroclor-1016 [2C]	ND	0.20	mg/Kg							R-05
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							R-05
Aroclor-1260 [2C]	ND	0.20	mg/Kg							R-05
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	4.57		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.55		mg/Kg	4.00		88.7	30-150			
Surrogate: Tetrachloro-m-xylene	3.58		mg/Kg	4.00		89.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.41		mg/Kg	4.00		85.2	30-150			
LCS (B186218-BS1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	3.5	0.20	mg/Kg	4.00		87.7	40-140			R-05
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		86.5	40-140			R-05
Aroclor-1260	3.4	0.20	mg/Kg	4.00		85.6	40-140			R-05
Aroclor-1260 [2C]	3.0	0.20	mg/Kg	4.00		74.9	40-140			R-05
Surrogate: Decachlorobiphenyl	4.56		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.53		mg/Kg	4.00		88.3	30-150			
Surrogate: Tetrachloro-m-xylene	3.55		mg/Kg	4.00		88.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.38		mg/Kg	4.00		84.5	30-150			
LCS Dup (B186218-BSD1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	1.1	0.20	mg/Kg	4.00		28.6	* 40-140	102	* 30	L-07A
Aroclor-1016 [2C]	1.2	0.20	mg/Kg	4.00		29.0	* 40-140	99.5	* 30	L-07A
Aroclor-1260	1.5	0.20	mg/Kg	4.00		38.3	* 40-140	76.4	* 30	L-07A
Aroclor-1260 [2C]	1.3	0.20	mg/Kg	4.00		32.7	* 40-140	78.5	* 30	L-07A
Surrogate: Decachlorobiphenyl	1.62		mg/Kg	4.00		40.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.30		mg/Kg	4.00		32.6	30-150			
Surrogate: Tetrachloro-m-xylene	1.04		mg/Kg	4.00		26.0	* 30-150			S-26
Surrogate: Tetrachloro-m-xylene [2C]	1.02		mg/Kg	4.00		25.4	* 30-150			S-26

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B186679 - SW-846 3540C										
Blank (B186679-BLK1)										
Prepared: 09/20/17 Analyzed: 09/21/17										
Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	4.12		mg/Kg	4.00		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.79		mg/Kg	4.00		94.7	30-150			
Surrogate: Tetrachloro-m-xylene	4.06		mg/Kg	4.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.94		mg/Kg	4.00		98.6	30-150			
LCS (B186679-BS1)										
Prepared: 09/20/17 Analyzed: 09/21/17										
Aroclor-1016	4.1	0.20	mg/Kg	4.00		102	40-140			
Aroclor-1016 [2C]	3.8	0.20	mg/Kg	4.00		94.3	40-140			
Aroclor-1260	3.7	0.20	mg/Kg	4.00		91.4	40-140			
Aroclor-1260 [2C]	3.2	0.20	mg/Kg	4.00		80.4	40-140			
Surrogate: Decachlorobiphenyl	4.18		mg/Kg	4.00		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.86		mg/Kg	4.00		96.4	30-150			
Surrogate: Tetrachloro-m-xylene	4.00		mg/Kg	4.00		100	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.89		mg/Kg	4.00		97.3	30-150			
LCS Dup (B186679-BSD1)										
Prepared: 09/20/17 Analyzed: 09/21/17										
Aroclor-1016	4.1	0.20	mg/Kg	4.00		103	40-140	1.72	30	
Aroclor-1016 [2C]	3.9	0.20	mg/Kg	4.00		97.0	40-140	2.83	30	
Aroclor-1260	3.7	0.20	mg/Kg	4.00		93.2	40-140	1.94	30	
Aroclor-1260 [2C]	3.3	0.20	mg/Kg	4.00		81.7	40-140	1.64	30	
Surrogate: Decachlorobiphenyl	4.22		mg/Kg	4.00		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.89		mg/Kg	4.00		97.2	30-150			
Surrogate: Tetrachloro-m-xylene	4.17		mg/Kg	4.00		104	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.05		mg/Kg	4.00		101	30-150			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PCB-203

SW-846 8082A

Lab Sample ID: 1710448-03RE1 Date(s) Analyzed: 09/21/2017 09/21/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	1.2	
	2	0.000	0.000	0.000	0.87	31.9

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-204

Lab Sample ID: 1710448-04 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	1.2	
	2	0.000	0.000	0.000	1.0	18.2

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
S-26	Surrogate outside of control limits.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
---------	----------------

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

1710448
 Phone: 413-525-2332
 Fax: 413-525-6405
 Email: info@contestlabs.com
 EFF Global

Requested Turnaround Time
 7-Day 10-Day
 Due Date: 5 PM TAT
 Rush-Approval Required
 1-Day 3-Day
 2-Day 4-Day
 Data Delivery
 Format: PDF EXCEL
 Other:
 CLP Like Data Pkg Required:
 Email To:
 Fax To #:

Company Name:
 Address: 15 West St Suite C Wilmington MA
 Project Name:
 Project Location: Fernald School-Green Bldg - W.H.Hen.
 Project Number:
 Project Manager: John Vaz
 Con-Test Quote Name/Number:
 Invoice Recipient: Sean Cassidy
 Sampled By: J. Vaz

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composits	Grab	Matrix Code	Conc Code
01	PCB-201	9/12	9/12	1345	X	502	
02	PCB-202	9/12	9/12	1345	X		
03	PCB-203	9/12	9/12	1350	X		
04	PCB-204	9/12	9/12	1350	X		
05	PCB-205	9/12	9/12	1400	X		
010	PCB-206	9/12	9/12	1400	X		

ANALYSIS REQUESTED

- 1 Matrix Codes:**
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please define)
- 2 Preservation Codes:**
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium Thiosulfate
 O = Other (please define)
- 3 Container Codes:**
 A = Amber Glass
 G = Glass
 P = Plastic
 ST = Sterile
 V = Vial
 S = Summa Canister
 T = Tedlar Bag
 O = Other (please define)

Comments: John-vaz @edglobal.com
 Email to Sean.Cassidy
 byden-mcdernest

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) Date/Time: 9/12/17 1415
 Received by: (signature) Date/Time: 9/12/17 1415
 Relinquished by: (signature) Date/Time: 9/12/17 1415
 Received by: (signature) Date/Time: 9/12/17 1415
 Relinquished by: (signature) Date/Time: 9/12/17 1415
 Received by: (signature) Date/Time: 9/12/17 1415

Special Requirements
 MA MCP Required
 MCP Certification Form Required
 CT RCP Required
 RCP Certification Form Required
 MA State DW Required

Project Entity
 Government Municipality MWRA WRTA
 Federal City School MBTA
 Other Chromatogram AIHA-LAP, LLC

NEIAC and AIHA-LAP, LLC Accredited

con-test ANALYTICAL LABORATORY www.contestlabs.com

39 Spruce St.
 East Longmeadow, MA. 01028
 P: 413-525-2332
 F: 413-525-6405
 www.contestlabs.com



con-test[®]
 ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client EFI Global

Received By RLF Date 9/2/17 Time 1900

How were the samples received? In Cooler T No Cooler On Ice T No Ice
 Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 3.8°C
 By Blank # Actual Temp -

Was Custody Seal Intact? NA Were Samples Tampered with? NA
 Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F

Are there Short Holds? F

Is there enough Volume? T

Is there Headspace where applicable? NA

Proper Media/Containers Used? T

Were trip blanks received? F

Do all samples have the proper pH?

Who was notified?
 Who was notified?
 Who was notified?

MS/MSD? NA

Is splitting samples required? F

On COC? NA

Acid NA Base NA

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

155 West Street
Suite 6
Wilmington, MA 01887
T: 978-688-3736
TF: 800-659-1202
F: 978-688-5494
www.efiglobal.com



October 3, 2017

Mr. Joseph Pedulla, MCPPO, CPM
Chief Procurement Officer
City of Waltham
610 Main Street
Waltham, Massachusetts 02452

Via Email: jpedulla@city.waltham.ma.us

RE: **Asbestos & Hazardous Materials Survey Report
Kelley Building
Former Fernald School
200 Fernald Road
Waltham, Massachusetts
EFI Project No. 98350-06362**

Dear Mr. Pedulla:

EFI Global Inc. (EFI) is pleased to provide this survey report to the City of Waltham for a pre-demolition hazardous materials survey of the interior and exterior of the Kelley Building, located on the campus of the former Fernald School in Waltham, Massachusetts (Site). EFI performed the survey on August 2-3, 2017 using fully trained and licensed building inspectors. The pre-demolition inspection included a survey of the building for suspect asbestos-containing materials, sampling of representative coatings for lead-based paint, and an inventory of universal waste and other hazardous materials.

EFI is pleased to provide environmental consulting services to City of Waltham. If you have any questions regarding the contents of this report, or are in need of additional information, please do not hesitate to contact Sean Cassidy at 978-886-3712. Thank you for this opportunity to serve your environmental needs.

Sincerely,

EFI Global, Inc.



John Vaz
Project Manager



Sean E. Cassidy, CIEC
District Manager

ASBESTOS & HAZARDOUS MATERIALS SURVEY REPORT

**KELLEY BUILDING
FORMER FERNALD SCHOOL
200 TRAPELO ROAD
WALTHAM, MASSACHUSETTS**



Prepared for:

**City of Waltham
610 Main Street
Waltham, MA 02452**

Prepared by:



**155 West Street, Suite 6
Wilmington, Massachusetts 01887**

EFI Project Number: 98350-06362

October 3, 2017

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ATTACHMENTS

ATTACHMENT A – SAMPLE LOCATION DRAWINGS

ATTACHMENT B - TABLES

TABLE 1 – ASBESTOS-CONTAINING MATERIALS INVENTORY

TABLE 2 – UNIVERSAL WASTE & HAZARDOUS MATERIALS INVENTORY

TABLE 3 – PCB SAMPLING RESULTS

ATTACHMENT C - ASBESTOS LABORATORY REPORT

ATTACHMENT D - LEAD PAINT LABORATORY REPORT

ATTACHMENT E – PHOTOGRAPHS

ATTACHMENT F – PCB LABORATORY REPORT

1.0 EXECUTIVE SUMMARY

This report presents the results of the pre-demolition survey for asbestos-containing materials (ACM), lead-based paint (LBP), Universal Waste (e.g., PCB- and mercury-containing electrical equipment) and other hazardous materials (OHM) at the Kelley Building located on the campus of the former Fernald School in Waltham, Massachusetts (Site).

EFI's asbestos and hazardous materials survey of the Site building was conducted on August 2-3, 2017. The scope of work for EFI's limited survey was to perform a walkthrough of the building to identify the types, locations, and quantities of ACMs and perform laboratory testing of suspect ACMs. In addition, EFI performed a lead paint screening of a representative number of painted/coated building components, and inventoried Universal Waste and OHMs present on the interior and exterior of the building. The purpose of EFI's limited survey was to identify and quantify ACMs and OHMs that may need to be removed prior to building demolition activities and to identify LBP that may present on the interior and exterior of the site building so that construction personnel can be made aware of the presence of LBP.

The Site building is an approximately 28,500 square foot, three-story, brick walled structure with a flat built up roof on concrete decking. Interior portions of the Site structure were finished with tiled flooring, plaster walls and ceilings, and acoustic ceiling tiles. The Site has been vacant for several years and has been vandalized.

Asbestos

Section 2.0 outlines the procedures and results of the asbestos survey. The survey involved locating, quantifying, and evaluating the condition of accessible suspect asbestos-containing materials using bulk sampling and visual inspection techniques.

The asbestos inspection was performed by Commonwealth of Massachusetts-licensed asbestos inspectors Mr. Chris Eustis and Mr. John Vaz. A total of 77 samples of suspect asbestos-containing materials (ACM) were analyzed for asbestos content during the survey. EFI's inspectors performed the visual inspection and bulk sampling of suspect ACMs on Site and submitted them under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. The findings of this report are based upon observations of accessible materials and the analysis of representative bulk samples collected.

The locations of ACMs identified herein are depicted on the sample location drawings presented in Attachment A. Asbestos and hazardous materials inventories (Table 1 & Table 2, respectively), indicating the types and quantities of asbestos and hazardous materials identified during the survey are presented in Attachment B. Copies of the asbestos laboratory analytical reports are presented in Attachment C.

The following suspect ACMs sampled by EFI were reported by EMSL as containing greater than or equal to one percent asbestos, the Massachusetts limit for classification as ACM:

- Interior window glazing
- Pipe insulation
- 9"x9" grey floor tile
- White skim coat on concrete ceilings/columns
- Exterior grey door caulk

A significant amount of asbestos-containing debris was observed throughout the building, contaminating surfaces and stored materials throughout. The entire interior of the building must be considered asbestos contaminated. All porous materials (fiberglass, soft goods, cardboard, paper, furniture, etc.) must be removed and disposed as ACM. All non-porous materials (steel, finished hardwood furniture/products, glass) must be thoroughly decontaminated using HEPA vacuuming and wet-wiping techniques and disposed as construction debris.

If suspect ACMs other than the above-referenced materials are identified during demolition activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

Based on the laboratory results and EFI's visual observations, it is recommended that asbestos-containing materials identified at the Site building be properly removed and disposed by a Massachusetts-licensed asbestos abatement contractor prior to the start of demolition activities.

Lead-Based Paint

Section 3.0, outlines the procedures and results of the lead paint survey. During the survey, EFI performed limited testing for lead-based paint in accessible areas of the building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance with USEPA method SW846-7420. Samples collected from red/green paint on metal contained detectable concentrations of lead.

It is recommended that construction or demolition personnel conducting demolition work at the Site building comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site. The analytical results of the testing performed by EFI, including location, building component, and percent lead for each interior/exterior building component tested are presented in Attachment D.

Universal Waste

Section 4.0 outlines the procedures and results of the Universal Waste survey. EFI conducted a visual inspection for the presence of PCB- and/or mercury-containing fluorescent light fixture components within the interior of the building. EFI identified suspected PCB-and di (2-ethylhexyl) phthalate (DEHP)-containing light ballasts, and mercury-containing fluorescent light bulbs throughout the building. It is recommended that identified Universal Waste at the Site building be properly removed, transported and disposed by a qualified Contractor. An inventory of Universal Waste identified during EFI's survey is presented in Attachment B.

Other Hazardous Materials

Section 5.0 outlines the procedures and results of the OHM survey/inventory. Other hazardous materials observed within the Site building included mercury thermostats/switches, emergency exit signs/lights/strobes (lead acid batteries), and miscellaneous containerized wastes. It is recommended that the identified Hazardous Materials at the Site building be properly removed, transported, and disposed by a qualified contractor. An inventory of OHMs identified during EFI's survey is presented in Attachment B.

Limitations

This report is intended for the sole use of the City of Waltham and is not to be used as a bidding document. The scope of services performed in execution of this evaluation may not be appropriate

to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user. This investigation was performed to identify readily accessible and visible hazardous materials, however, it should not be assumed that all hazardous materials in the building have been identified due to issues relating to accessibility of rooms, inaccessible building areas and wall/ceiling cavities. EFI's survey did not include an evaluation of the Site building for underground steam lines, subsurface foundation damp-proofing, and underground transite sewer/water piping.

EFI's professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

2.0 ASBESTOS CONTAINING MATERIALS SURVEY

2.1 SAMPLING METHODOLOGY

The survey was performed by USEPA-accredited and Commonwealth of Massachusetts licensed asbestos inspectors. EFI conducted a thorough inspection of accessible areas of the buildings. Limited exploratory demolition was performed on the interior and exterior of the buildings to evaluate the potential presence of hidden asbestos-containing materials using hand tools. Bulk samples representing individual homogenous areas of suspect materials were collected in a randomly distributed manner, in accordance with the methods outlined below.

Building materials exist in the form of thermal systems insulation (TSI), surfacing materials, and miscellaneous materials. The following illustrates the sampling strategy implemented by EFI:

- (a) Surfacing materials (e.g., wall and ceiling plaster) - In a randomly distributed manner, collect bulk samples of surfacing materials, representative of each homogeneous area, and not assumed to be ACM.
 - (1) Collect at least three bulk samples from each homogeneous area that is less than or equal to 1,000 ft².
 - (2) Collect at least five bulk samples from each homogeneous area that is greater than 1,000 ft², but less than or equal to 5,000 ft².
 - (3) Collect at least seven bulk samples from each homogeneous area that is greater than 5,000 ft².
- (b) Thermal systems insulation (e.g., pipe fitting insulation, tank insulation, etc.)
 - (1) In a randomly distributed manner, collect at a minimum, three (3) bulk samples of thermal systems insulation material, representative of each homogeneous area, and not assumed to be ACM.
 - (2) Collect, at a minimum, one (1) bulk sample of patched thermal systems insulation, representative of each homogenous area, and not assumed to be ACM, providing the section of patch was less than 6 linear or square feet.

- (3) Collect, at a minimum, three (3) representative bulk samples of each insulated mechanical system not assumed to be ACM, including, but not limited to cementitious material used on pipe fittings such as tees, elbows, or valves. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.
- (4) Bulk samples are not required to be collected from any homogeneous area where the accredited asbestos inspector has determined that the thermal systems insulation is a non-suspect material (i.e., fiberglass, foam glass, rubber, or any other non-ACM).
- (c) Miscellaneous materials (e.g., floor and ceiling tiles) - Collect, at a minimum, two (2) representative bulk sample of each miscellaneous material assumed to be ACM, including, but not limited to ceiling tiles, floor tiles, associated floor tile mastic, etc. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.

2.2 ASBESTOS-CONTAINING MATERIALS

The following suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos:

- Sheetrock
- Residual black mastic
- Black ceramic floor tile grout
- Grey base coat plaster
- 12"x12" white mottled floor tile
- Interior white window caulk
- Exterior grey window caulk
- White textured paint
- Black mastic associated with 9"x9" grey floor tile
- 1'x1' white squiggle ceiling tile and associated black glue daubs
- 2'x4' white squiggle ceiling tile
- White skim coat plaster
- Mainfield roof black tar and gravel
- Black tar at roof penetrations
- Yellow duct sealant
- Brick
- Mortar
- Exterior stairwell grey panel caulk
- Tar flashing under windowsill
- Wire insulation

The types, locations and estimated quantities of ACMs identified during the survey are presented in Attachment B.

Samples of suspect asbestos-containing materials were submitted under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. The asbestos laboratory analytical report is presented in Attachment C.

By using the PLM/DS method, a trained microscopist is able to identify and distinguish between asbestos group minerals and other fibrous materials such as cellulose (paper), mineral (rock), wood, or glass fiber. The quantity of each of these substances is estimated on a visual basis and

recorded as a percent. If a material contains greater than or equal 1% asbestos, it is considered to be an asbestos-containing material under Massachusetts Department of Environmental Protection asbestos regulations.

EMSL is an EPA-accredited laboratory "Interim Asbestos Bulk Sample Analysis Quality Assurance Program". EMSL is also accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). The PLM/DS analytical method is modeled after 40 CFR Part 763, Subpart F, Attachment A: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples."

2.3 ADDITIONAL CONSIDERATIONS/ SPECIFIC RECOMMENDATIONS

A significant amount of asbestos-containing debris was observed throughout the building, contaminating surfaces and stored materials throughout. The entire interior of the building must be considered asbestos contaminated. All porous materials (fiberglass, soft goods, cardboard, paper, furniture, etc.) must be removed and disposed as ACM. All non-porous materials (steel, finished hardwood furniture/products, glass) must be thoroughly decontaminated using HEPA vacuuming and wet-wiping techniques and disposed as construction debris.

EFI evaluated areas of the building that were reasonably accessible at the time of the survey. EFI's survey scope of work included visual inspection and assessment of areas behind sheetrock ceilings and walls only in locations where exploratory demolition using hand tools was possible.

EFI performed roof sampling during the survey in order to determine whether asbestos-containing roofing materials were present. The City of Waltham performed test pitting to identify suspect asbestos-containing damp-proofing on the concrete foundation walls and none was identified.

EFI recommends that any hidden materials uncovered during future demolition activities and not identified within this report, should be assumed to be asbestos-containing until laboratory analysis proves otherwise. EFI's survey did not include an assessment for the presence of underground steam lines, and underground transite water/sewer lines that may be present at the Site.

2.4 GENERAL RECOMMENDATIONS

If suspect ACMs other than the above-referenced materials are identified during demolition activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

EFI recommends that asbestos-containing materials that are to be impacted by the proposed demolition activities at the Site building be properly removed and disposed by a Massachusetts-licensed Asbestos Abatement Contractor. The abatement must be completed in accordance with all requirements of Commonwealth of Massachusetts asbestos regulations; EPA regulations (40 CFR 61); and OSHA regulations (29 CFR 1926.1101), including all applicable local ordinances and policy statements.

3.0 LEAD-BASED PAINT INSPECTION AND METHODOLOGY

During the survey, EFI performed limited testing for lead-based paint in accessible areas of the interior and exterior of the Site building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted by EMSL with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance

with US EPA method SW846-7420.

3.1 Summary of Findings

The EPA defines “lead-based paint” as paints or coatings containing lead in concentrations of greater than 0.5 percent by weight or 1.0 mg/cm². Samples collected from red/green paint on metal contained detectable concentrations of lead below 0.5% by weight. Samples of the following paint did not contain concentrations of lead above laboratory detection limits–

- White paint on metal ceiling tile
- White/green paint on metal
- Brown paint on sheetrock
- Yellow paint on concrete ceiling
- White paint on plaster ceiling

A copy of the lead paint laboratory analytical report is presented in Attachment D.

3.2 REGULATORY IMPLICATIONS AND RECOMMENDATIONS

Regulatory Implications

OSHA defines any detectable concentration of lead in paint as a potential lead exposure hazard to workers performing construction or demolition work that disturbs these surfaces, as even small concentrations of lead can result in unacceptable employee exposures. The level of exposure varies based upon the lead concentration, method of removal, and other workplace conditions. Since these conditions can vary greatly, the OSHA Lead Construction Standard (29 CFR 1926.62) requires exposure monitoring or the use of historical or objective monitoring data to ensure that employee exposures do not exceed the OSHA action level of 30 micrograms per cubic meter of air (µg/m³) and the OSHA permissible exposure limit (PEL) of 50 µg/m³.

OSHA requires that contractors monitor employee exposures if coated surfaces with paint containing lead are impacted during construction or demolition. Contractors and employers of staff who may disturb these materials are obligated to perform a negative exposure assessment in accordance with OSHA regulations to document that exposure to lead does not exceed the OSHA action level and the PEL.

OSHA states that the employer must treat employees as if they would be exposed above the PEL until the employer 1) performs an exposure assessment that documents that employees are not exposed above the PEL or 2) can supply prior data regarding the same type of work which may exempt them from the standard. The OSHA Lead Construction Standard applies to many construction activities including the following:

- manual demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- abrasive blasting enclosure movement and removal;
- power tool cleaning;
- lead burning;
- using lead-containing mortar or spray painting with lead-containing paint;
- abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;

- cleanup activities where dry expendable abrasive are used; and
- any other task the employer believes may cause exposure in excess of the PEL.

The contractor must provide respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under the standard include a written compliance program, as well as, record keeping.

The contractor must also characterize and dispose of all dust, debris, and blast media in accordance with US EPA and Massachusetts Department of Environmental Protection regulations. This includes waste characterization of dust, debris and blast media generated during paint removal activities via the toxicity characteristic leaching procedure (TCLP).

Waste Disposal Implications

Waste disposal is governed by the EPA's Resource Conservation and Recovery Act (RCRA) regulations, which distinguish between solid wastes and hazardous wastes. Solid wastes include general construction debris and are subject to minimum handling, transportation, and landfill disposal requirements under RCRA regulations. Hazardous wastes, including certain lead-containing materials, are subject to restrictions designed to prevent the hazardous materials from entering the environment. Lead waste is classified as hazardous or non-hazardous based on the results of the TCLP testing. The leachability test measures whether or not lead leaches from the waste in excess of the regulated level of 5.0 mg/L. If the results of the TCLP analysis exceed this level, the waste must be handled, transported and disposed as a hazardous waste in an approved waste site, reclamation facility or incinerator site. EPA's regulations require the TCLP test be performed so that it represents the matrix and material of the waste stream.

Recommendations

It is recommended that lead TCLP samples be collected and analyzed prior to disposal. If the TCLP results for the building materials are below 5.0 mg/L, the materials can be disposed as construction debris. If the TCLP results are greater than 5.0 mg/L, the materials must be disposed as a lead hazardous waste.

It is also recommended that construction or demolition personnel conducting work at the facility comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site.

4.0 PCB/MERCURY-CONTAINING LIGHT FIXTURES (UNIVERSAL WASTE)

The primary concern regarding the disposal of used light ballasts is the health risk associated with exposure to PCBs. Fluorescent light ballasts contain a small capacitor that may contain high concentrations of PCBs (greater than 90% pure PCBs or 900,000 ppm). These chemical compounds were widely used as insulators in electrical equipment such as capacitors, switches, and voltage regulators through the late 1970s. Fluorescent light ballasts manufactured prior to 1979 may contain small quantities of PCBs. Recently manufactured fluorescent light ballasts are required to have "No PCB" labels. Light ballasts that do not have "No PCB" labels should be treated as PCB-containing and handled/disposed of accordingly. In addition, if light ballasts do not have "No PCB" labels, the manufacturer should be contacted to ascertain the presence of

PCBs. Following the ban of PCB production, in 1979 manufacturers began using di (2-ethylhexyl) phthalate (DEHP) as a replacement to PCBs. DEHP is listed as a hazardous substance under the EPA's Superfund regulations. Generators discarding of light ballasts should take the same precautions with their DEHP ballasts as they do with their PCB ballasts to avoid any future liabilities.

The primary concern regarding the disposal of fluorescent light bulbs is the health risk associated with exposure to mercury. Fluorescent light bulbs contain a small quantity of mercury that can be harmful to the environment and to human health when improperly managed. Mercury is regulated under RCRA, which is administered by the EPA. To prevent these toxic materials from contaminating the environment, EFI recommends that fluorescent light bulbs be disposed/recycled of in accordance with applicable regulations.

4.1 SUMMARY OF FINDINGS

EFI conducted a survey to determine the estimated number of fluorescent light bulbs and ballasts located throughout the building. Investigative findings indicate that ballasts located within the building are either unlabeled or have labels that identify them as "No PCBs." It is recommended that all ballasts be removed from the building and disposed in accordance with applicable federal, state, and local regulations. EFI recommends recycling of fluorescent light bulbs in accordance with applicable state and federal regulations. A detailed inventory of fluorescent light tubes and ballasts is provided in Table 2 of Attachment B.

5.0 OTHER HAZARDOUS MATERIALS

EFI performed an inventory of hazardous chemicals, petroleum and mechanical equipment located within the building that will require special handling and disposal prior to building demolition activities. During the survey, EFI identified hydraulic doorstops, mercury thermostats/switches, lead acid batteries, equipment containing CFCs/refrigerant, suspect PCB-containing transformers, fire extinguishers, and various containerized wastes within the Site building. An inventory of the identified building-related hazardous materials is presented in Attachment B.

It is recommended that identified Other Hazardous Materials at the Site building be properly removed and disposed by a qualified contractor.

6.0 PCBs IN BUILDING MATERIALS

PCB sampling was conducted during a separate site visit on September 12, 2017 by John Vaz of EFI. EFI collected representative samples window and door caulking/glazing material identified during the walkthrough and submitted the samples to Con-Test Analytical Laboratory of East Longmeadow, Massachusetts. Samples were analyzed using EPA Method 8082 with Soxhlet extraction with a standard 5-day turnaround time.

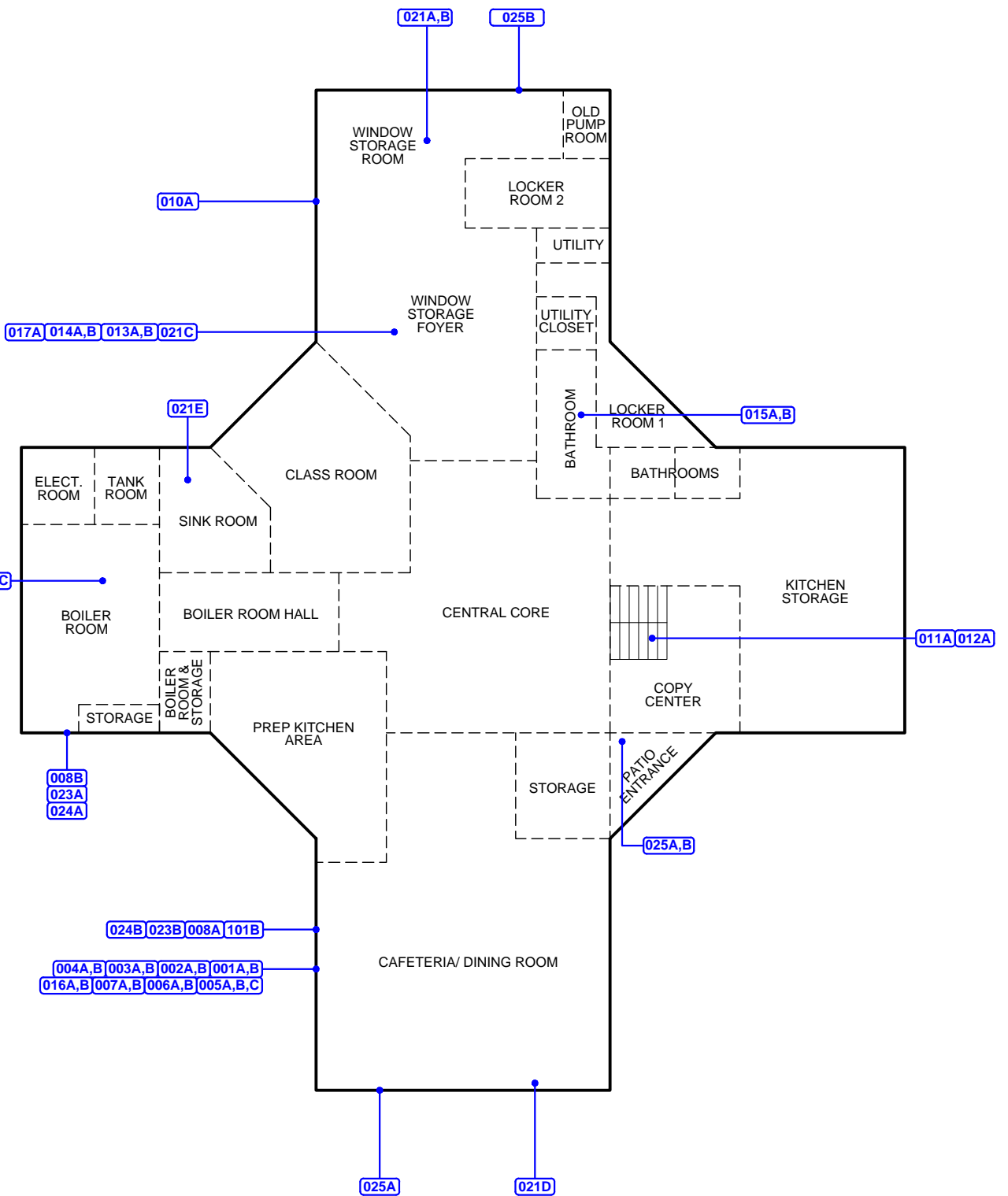
Samples of window sill caulk and window glazing contained PCB concentrations of less than 50 parts per million (ppm), but greater than 2 ppm. As such, these materials cannot be disposed of in a Massachusetts landfill, and must be disposed of in an approved out-of-state landfill. Samples of grey door caulk and of exterior window caulk analyzed by Con-Test were reported as containing a concentration of PCBs of greater than 50 ppm. Therefore, these materials are considered "PCB bulk product waste" under 40 CFR 761.3, and must be removed and disposed at a facility permitted to accept PCB bulk product waste. In addition, it is likely that the PCB-containing caulking materials have leached into the adjacent brick/concrete materials. As such the adjacent material can be

disposed in its entirety, without delineation, as a PCB bulk product waste under a "Performance Based Disposal." Alternatively, the extent of leaching into the adjacent materials can be delineated via core sampling and laboratory analysis and subsequently removed and disposed as PCB bulk product waste under a "Self Implementing Plan", which would require EPA review and approval.

A copy of the laboratory report prepared by Contest is presented in Attachment F. A table summarizing PCB sampling results is presented in Attachment B.

ATTACHMENT A

SAMPLE LOCATION DRAWINGS



NOT TO SCALE

LEGEND

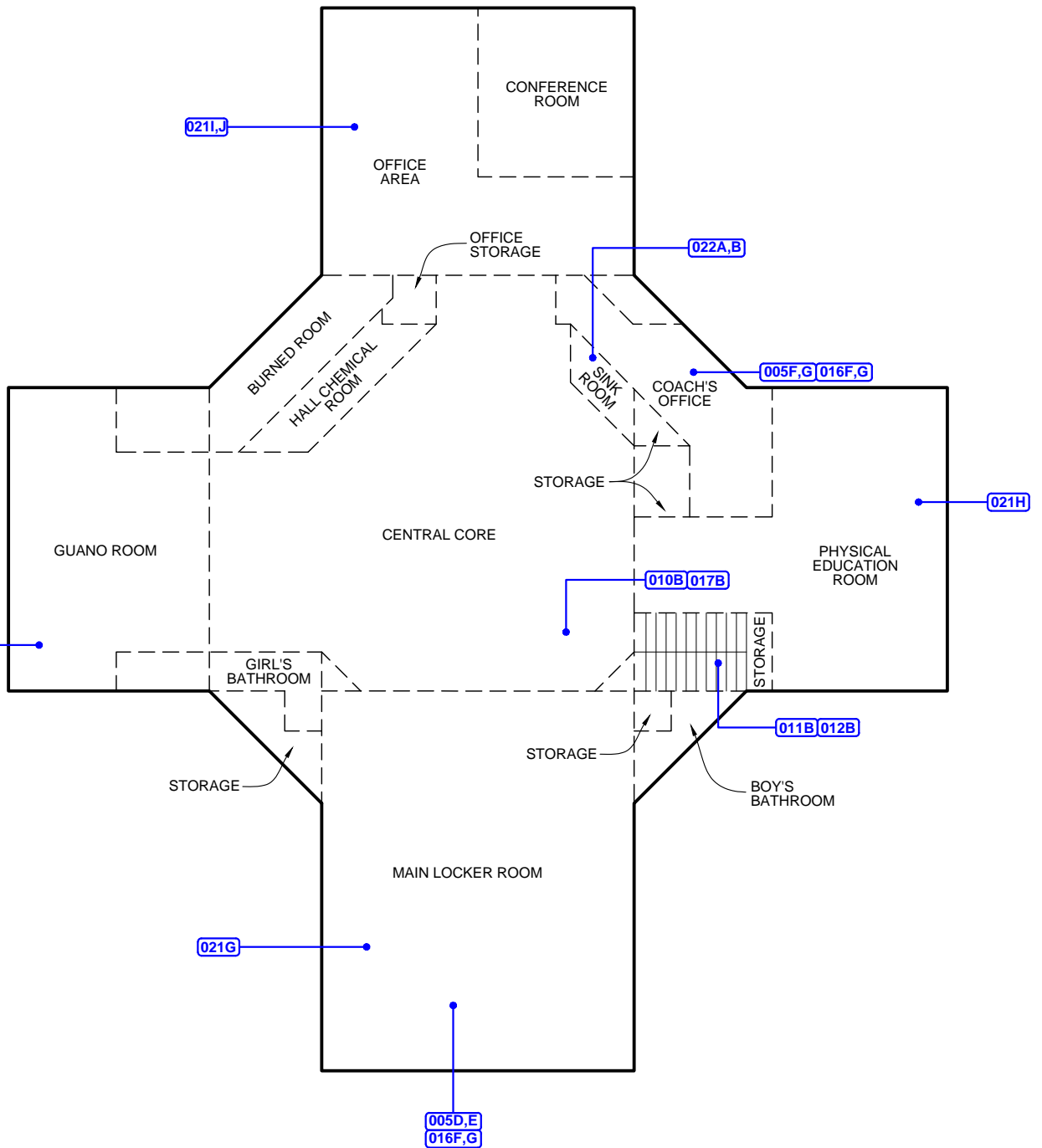
001A SAMPLE LOCATION

1ST FLOOR

KELLY BUILDING
200 TRAPELO RD.
WALTHAM, MA 02452



PN:98350-06362	FIGURE
DT: 8/31/2017	1
DB:JE	CB:LM



NOT TO SCALE

LEGEND

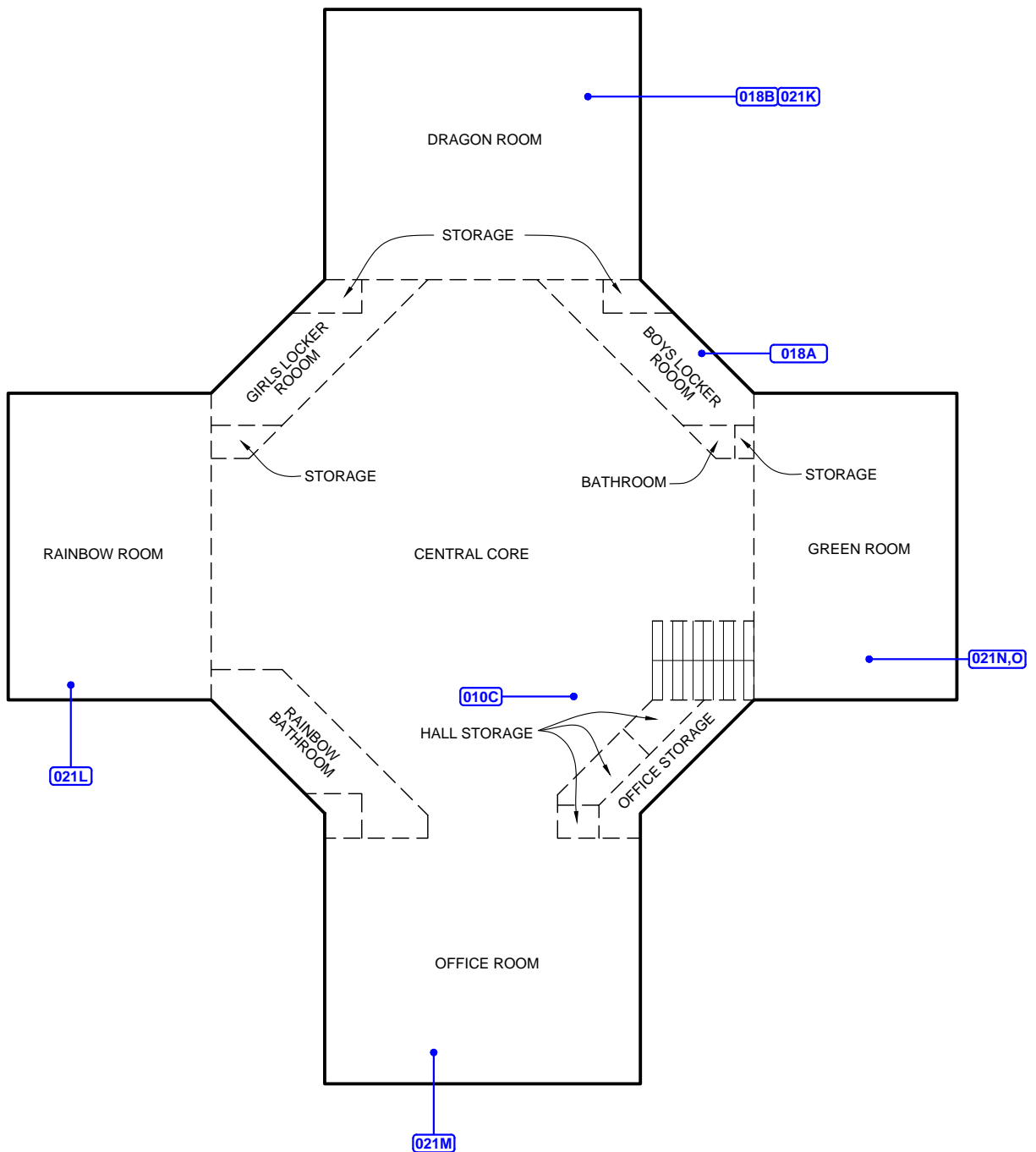
001A SAMPLE LOCATION

2ND FLOOR

KELLY BUILDING
200 TRAPELO RD.
WALTHAM, MA 02452



PN: 98350-06362	FIGURE
DT: 8/31/2017	2
DB: JE	CB: LM



NOT TO SCALE

LEGEND

001A SAMPLE LOCATION

3RD FLOOR

KELLY BUILDING
200 TRAPELO RD.
WALTHAM, MA 02452



PN:98350-06362	FIGURE
DT: 8/31/2017	3
DB: JE CB: LM	

ATTACHMENT B

TABLES

Table 1

Asbestos-Containing Materials Inventory – Kelley Building

Material Description	Material Location	Estimated Quantity
Interior window glazing	Throughout Building	240 Windows
Pipe insulation/elbows/tees and debris	Throughout Building	2,000 LF
9"x9" grey floor tile	Middle Stairwell, Chemical Storage, Copy Room, Boys Locker Room	4,000 SF
White skim coat on concrete ceilings/columns	Throughout Building	27,000 SF
Door caulk	Exterior	6 doors

SF – square feet

LF – linear feet

Table 2

Hazardous Materials Inventory – Kelley Building

Material Description (Hazard)	Material Location	Estimated Quantity
Fluorescent Light Tubes	Throughout Interior	700 Units
Fluorescent Light Ballasts	Throughout Interior	350 Units
Emergency Exit Signs/Lights/Strobes	Throughout Interior	25 Units
Refrigerator Units/ A/C Window Units	Throughout Interior	15 Units
Fire Extinguishers	Throughout Interior	15 Units
Hydraulic Doorstops/Closers	Throughout Interior	60 Units
Paint Cans/Containerized Wastes (Flammable Liquid)	Throughout Interior	55 Units
Petroleum Liquids/Containerized Wastes	Throughout Interior	20 Units
Smoke Alarms	Throughout Interior	55 Units
Fire Alarm Switches	Throughout Interior	30 Units
Motors (Oils Reservoirs)	Throughout Interior	12 Units
Transformers	Throughout Interior	10 Units

Table 3 - PCB Results

Con-Test Analytical Laboratory	Client	EFI Global								
Analytical Testing Report	Attention	John Vaz								
Work Order: 1710447	Project Name	Fernald School - Kelly Building - Waltham								
Report Date: 9/22/2017 2:05:18 PM	Project Number	98350-06362								
General Method	Analyte	Units								
LAB ID			1710447-01	1710447-02	1710447-03	1710447-04	1710447-05	1710447-06	1710447-07	1710447-08
CLIENT ID			PCB-101	PCB-102	PCB-103	PCB-104	PCB-105	PCB-106	PCB-107	PCB-108
DATE SAMPLED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17
DATE RECEIVED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17
MATRIX			Grey Door Caulk	Grey Door Caulk	Window Sill Caulk	Window Sill Caulk	Exterior Window Caulk	Exterior Window Caulk	Window Glaze	Window Glaze
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1016	mg/Kg	<190	<330	<9.2	<9.8	<200	<45	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1221	mg/Kg	<190	<330	<9.2	<9.8	<200	<45	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1232	mg/Kg	<190	<330	<9.2	<9.8	<200	<45	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1242	mg/Kg	<190	<330	19	<9.8	<200	<45	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1248	mg/Kg	3800	4000	<9.2	44	3000	190	1.9	3.2
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1254	mg/Kg	1600	1700	<9.2	<9.8	1200	480	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1260	mg/Kg	830	920	<9.2	<9.8	670	390	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1262	mg/Kg	<190	<330	<9.2	<9.8	<200	<45	<0.72	<0.64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1268	mg/Kg	<190	<330	<9.2	<9.8	<200	<45	<0.72	<0.64
		Total	6230	6620	19	44	4870	1060	1.9	3.2

ATTACHMENT C

ASBESTOS LABORATORY REPORT



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703490

Customer ID: EAF166

Customer PO:

Project ID:

Attention: Sean Cassidy
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 886-3712

Fax: (978) 688-5494

Received Date: 08/07/2017 8:30 AM

Analysis Date: 08/09/2017

Collected Date:

Project: 98350-06352. Kelly building- Fernald School, Waltham, MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001A <small>131703490-0001</small>	1st floor dining room - interior window glazing	Gray Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
001B <small>131703490-0002</small>	1st floor dining room - interior window glazing	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
002A <small>131703490-0003</small>	1st floor dining room - sheetrock	Gray/Tan Fibrous Homogeneous	10% Cellulose 2% Glass	88% Non-fibrous (Other)	None Detected
002B <small>131703490-0004</small>	1st floor dining room - sheetrock	Gray/Tan Fibrous Homogeneous	10% Cellulose 2% Glass	88% Non-fibrous (Other)	None Detected
003A <small>131703490-0005</small>	1st floor dining room - residual black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B <small>131703490-0006</small>	1st floor dining room - residual black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004A <small>131703490-0007</small>	1st floor dining room - black ceramic floortile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004B <small>131703490-0008</small>	1st floor dining room - black ceramic floortile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005A <small>131703490-0009</small>	1st floor dining room - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005B <small>131703490-0010</small>	1st floor dining room - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005C <small>131703490-0011</small>	1st floor dining room - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005D <small>131703490-0012</small>	2nd floor main locker room, phys ed office - grey base coat plaster	Gray Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
005E <small>131703490-0013</small>	2nd floor main locker room, phys ed office - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005F <small>131703490-0014</small>	2nd floor main locker room, phys ed office - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005G <small>131703490-0015</small>	2nd floor main locker room, phys ed office - grey base coat plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006A <small>131703490-0016</small>	1st floor dining room - 12"x12" white mottled floor tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 13:39:57



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703490

Customer ID: EAF166

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
006B <small>131703490-0017</small>	1st floor dining room - 12"x12" white mottled floor tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007A <small>131703490-0018</small>	1st floor dining room - interior white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007B <small>131703490-0019</small>	1st floor dining room - interior white window caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008A <small>131703490-0020</small>	exterior - exterior grey window caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008B <small>131703490-0021</small>	exterior - exterior grey window caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009A <small>131703490-0022</small>	1st floor boiler room - pipe insulation	White Fibrous Homogeneous		85% Non-fibrous (Other)	10% Amosite 5% Chrysotile
009B <small>131703490-0023</small>	1st floor boiler room - pipe insulation	White Fibrous Homogeneous		85% Non-fibrous (Other)	10% Amosite 5% Chrysotile
009C <small>131703490-0024</small>	1st floor boiler room - pipe insulation	White Fibrous Homogeneous		85% Non-fibrous (Other)	10% Amosite 5% Chrysotile
010A <small>131703490-0025</small>	core-1st, 2nd, 3rd floor - white textured paint	White/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
010B <small>131703490-0026</small>	core-1st, 2nd, 3rd floor - white textured paint	White/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
010C <small>131703490-0027</small>	core-1st, 2nd, 3rd floor - white textured paint	White/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
011A <small>131703490-0028</small>	center stairwell-1st + 2nd floor landings - 9x9 grey floor tile	Brown/Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
011B <small>131703490-0029</small>	center stairwell-1st + 2nd floor landings - 9x9 grey floor tile	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
012A <small>131703490-0030</small>	center stairwell-1st + 2nd floor landings - associated black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
012B <small>131703490-0031</small>	center stairwell-1st + 2nd floor landings - associated black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013A <small>131703490-0032</small>	1st floor center core - 1'x1' white squiggle ceiling tile	Gray/White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
013B <small>131703490-0033</small>	1st floor center core - 1'x1' white squiggle ceiling tile	Gray/White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
014A <small>131703490-0034</small>	1st floor center core - associated black glue daubs	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 13:39:57



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com / bostonlab@emsl.com>

EMSL Order: 131703490
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
014B <small>131703490-0035</small>	1st floor center core - associated black glue daubs	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
015A <small>131703490-0036</small>	1st floor bathroom - 2'x4' white squiggle ceiling tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
015B <small>131703490-0037</small>	1st floor bathroom - 2'x4' white squiggle ceiling tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
016A <small>131703490-0038</small>	1st floor dining room - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016B <small>131703490-0039</small>	1st floor dining room - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016C <small>131703490-0040</small>	1st floor dining room - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016D <small>131703490-0041</small>	2nd floor main locker room, phys ed office - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016E <small>131703490-0042</small>	2nd floor main locker room, phys ed office - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016F <small>131703490-0043</small>	2nd floor main locker room, phys ed office - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016G <small>131703490-0044</small>	2nd floor main locker room, phys ed office - white skim coat plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017A <small>131703490-0045</small>	center core 1st floor, 2nd floor - grey terrazzo	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
017B <small>131703490-0046</small>	center core 1st floor, 2nd floor - grey terrazzo	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018A <small>131703490-0047</small>	2nd floor locker room, 3rd floor dragon room - glaze black grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018B <small>131703490-0048</small>	2nd floor locker room, 3rd floor dragon room - glaze black grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019A <small>131703490-0049</small>	roof - mainfield black tar/gravel	Black Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
019B <small>131703490-0050</small>	roof - mainfield black tar/gravel	Black Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
020A <small>131703490-0051</small>	roof - tar at roof penetrations	Black Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
020B <small>131703490-0052</small>	roof - tar at roof penetrations	Black Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 13:39:57



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5 Constitution Way, Unit A Woburn, MA 01801

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<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703490
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
021A 131703490-0053	1st floor window storage, window storage foyer - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021B 131703490-0054	1st floor window storage, window storage foyer - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
5					
021C 131703490-0055	1st floor window storage, window storage foyer - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021D 131703490-0056	1st floor cafeteria stairwell, sink room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021E 131703490-0057	1st floor cafeteria stairwell, sink room - white skim coat on concrete ceiling	Tan/White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
021F 131703490-0058	2nd floor Guano room, main locker room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021G 131703490-0059	2nd floor Guano room, main locker room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021H 131703490-0060	2nd floor phys ed room, office room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021I 131703490-0061	2nd floor phys ed room, office room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021J 131703490-0062	2nd floor phys ed room, office room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021K 131703490-0063	3rd floordragon room, rainbow room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021L 131703490-0064	3rd floordragon room, rainbow room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021M 131703490-0065	3rd floor office room, green room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile

Initial report from: 08/09/2017 13:39:57



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EMSL Order: 131703490
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
021N <small>131703490-0066</small>	3rd floor office room, green room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
021O <small>131703490-0067</small>	3rd floor office room, green room - white skim coat on concrete ceiling	Gray Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
022A <small>131703490-0068</small>	2nd floor sink room - yellow duct sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
022B <small>131703490-0069</small>	2nd floor sink room - yellow duct sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
023A <small>131703490-0070</small>	exterior - brick	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
023B <small>131703490-0071</small>	exterior - brick	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
024A <small>131703490-0072</small>	exterior - mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
024B <small>131703490-0073</small>	exterior - mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
025A <small>131703490-0074</small>	exterior- stairwells - grey panel caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
025B <small>131703490-0075</small>	exterior- stairwells - grey panel caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
026A <small>131703490-0076</small>	exterior - exterior grey door caulk	Gray Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
026B <small>131703490-0077</small>	exterior - exterior grey door caulk	Gray Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile

Analyst(s) _____

Michael Mink (77)

Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/09/2017 13:39:57

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
 www.efiglobal.com

131703490



BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name): John Vez	Bill To: Accounts Payable
Company: EFI Global, Inc.	Address: Same
Address: 155 West Street Suite 6	City, State, Zip: Same
City, State, Zip: Wilmington, MA 01887	Telephone: 800-659-1202
	Fax: 978-688-5494

Project Information

Project No./ Description: 98350-06352	Kelly Building - Fernald School Waltham MA
Email Report to: Lynda McDermott@efiglobal.com	john-vez@efiglobal.com
Alternate: sean-cassidy@efiglobal.com	

Requested Turnaround Time:

RUSH
 1 day
 2 day
 3 day
 5 day

Media and Methodology

Type of Analysis: PCM - Asbestos	Check for Positive Stop: <input type="checkbox"/>
Notes: Analyze all plaster and joint compound samples	Date Collected: 8/2 - 8/3/17

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
001 A,B	Interior Window Glazing	1 ST Floor Dining Room		
002 A,B	Sheetrock	" " " "		
003 A,B	Residual Black Mastic	" " " "		
004 A,B	Black Ceramic Floor Tile Grout	" " " "		
005 A,B,C	Grey Base Coat Plaster	1 ST Floor Dining Room		
005 D,E,F,G	" " " "	2 ND Floor Men Locker Room, Phys Ed Office		
006 A,B	12x12" White Mottled Floor Tile	1 ST Floor Dining Room		
007 A,B	Interior White Window Caulk	" " " "		
008 A,B	Exterior Grey Window Caulk	Exterior		
009 A,B,C	Pipe Insulation	1 ST Floor Boiler Room		
010 A,B,C	White Textured Paint	Core - 1 ST , 2 ND , 3 RD Floors		

Total Number of Samples Submitted: _____

Samplers Name: [Signature] Samplers Signature: John Vez

Relinquished By (Client): [Signature] Date: _____ Time: _____

Received By (Lab): _____ Date: _____ Time: _____



131703490

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 F: 978-688-5494
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 Engineering, Fire &
 Environmental Services

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
011A,B	9x9 Grey Floor Tile	Center Stairwell - 1 st - 2 nd FL Landings		
012A,B	Associated Black Mastic	" " " " "		
013A,B	1'x1' White Squiggle Ceiling Tiles	1 st Floor Center Core		
014A,B	Associated Black Glue Dabs	" " " "		
015A,B	2'x4' White Squiggle Ceiling Tile	1 st Floor Bathroom		
016A,B,C	White Skim Coat Plaster	1 st Floor Dining Room		
016D,E,F,G	" " " "	2 nd Floor Main Locker Room, Phys Ed Office		
017A,B	Grey Terazzo	Center Core - 1 st Floor, 2 nd Floor		
018A,B	Gleze Black Grout	2 nd Floor Locker Room, 3 rd Floor Dragon Room		
019A,B	Mainfield Black Tar/Gravel	Roof		
020A,B	Tar at Roof Penetrations	"		
021A,B,C	White Skim Coat on Concrete Ceiling	1 st Floor Window Storage, Window Storage Foyer		
021D,E	" " " " " "	" " Cafeteria Stairwell, Sink Room		
021F,G	" " " " " "	2 nd Floor Guano Room, Main Locker Room		
021H,I,J	" " " " " "	" " Phys Ed Room, Office Room		
021K,L	" " " " " "	3 rd Floor Dragon Room, Rainbow Room		
021M,N,O	" " " " " "	" " Office Room, Green Room		
022A,B	Yellow Duck Sealant	2 nd Floor Sink Room		
023A,B	Brick	Exterior		
024A,B	Mortar	Exterior		
025A,B	Grey Panel Caulk	Exterior - Stairwells		
026A,B	Exterior Grey Door Caulk	Exterior		

RECEIVED
 AUG 07 2017
 By *MM83* Page 2 of 2



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703815

Customer ID: EAF166

Customer PO:

Project ID:

Attention: John Vaz
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736

Fax: (978) 688-5494

Received Date: 08/24/2017 8:54 AM

Analysis Date: 08/25/2017

Collected Date: 08/23/2017

Project: 98350-06352 / Kelly Bldg Fernald School MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
101A <small>131703815-0001</small>	Exterior - Tar on Flashing Under Window Sill	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
101B <small>131703815-0002</small>	Exterior - Tar on Flashing Under Window Sill	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
102A <small>131703815-0003</small>	Boiler Room - Wire Insulation	Black Fibrous Homogeneous	50% Cellulose 25% Synthetic	25% Non-fibrous (Other)	None Detected
102B <small>131703815-0004</small>	Boiler Room - Wire Insulation	Black Fibrous Homogeneous	50% Cellulose 25% Synthetic	25% Non-fibrous (Other)	None Detected

Analyst(s)

Michael Mink (4)

Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/25/2017 07:54:54

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 TF: 800-659-1202
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 www.efiglobal.com



BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name):	<u>John Vaz</u>	Bill To:	Accounts Payable
Company:	EFI Global, Inc.	Address:	Same
Address:	155 West Street	City, State, Zip:	Same
	Suite 6	Telephone:	800-659-1202
City, State, Zip:	Wilmington, MA 01887	Fax:	978-688-5494
Project Information			
Project No./ Description:	98350- <u>06352</u>	<u>Kelly Bldg Fernald School MA</u>	
Email Report to:	<u>Lynda McDermott@efiglobal.com</u>		
Alternate:	<u>john-vaz</u> <u>scott-cassidy</u>		
Requested Turnaround Time:			
<input type="checkbox"/> RUSH	<input checked="" type="checkbox"/> 1 day	<input type="checkbox"/> 2 day	<input type="checkbox"/> 3 day
Media and Methodology			
Type of Analysis:	<u>PLM-Asbestos</u>	Check for Positive Stop:	<input checked="" type="checkbox"/>
Notes:	Analyze all plaster and joint compound samples	Date Collected:	<u>8/23/17</u>

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
<u>101A,B</u>	<u>Tar on Flushing under Windowsill</u>	<u>Exterior</u>		
<u>102A,B</u>	<u>Wire Insulation</u>	<u>Boiler Room</u>		

FedEx
7700
9405
3297

Total Number of Samples Submitted: _____

Samplers Name: John Vaz Samplers Signature: [Signature]

Relinquished By (Client): [Signature] Date: 8/23/17 Time: 1600

Received By (Lab): _____ Date: _____ Time: _____

ATTACHMENT D

LEAD LABORATORY REPORT



EMSL Analytical, Inc.

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>

carleplacelab@emsl.com

EMSL Order:	061713430
CustomerID:	EAF166
CustomerPO:	98350-06352
ProjectID:	

Attn: **Lynda McDermott**
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736
 Fax: (978) 688-5494
 Received: 08/08/17 9:37 AM
 Collected: 8/2/2017

Project: **Project No: 98350-06352, Kelly Building-Fernald School Waltham, MA**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
PB01 Site: 1st Floor Dining Room Desc: White Paint on Metal Ceiling Tile	061713430-0001	8/2/2017	8/11/2017	<0.0080 % wt
PB02 Site: 1st Floor Dining Room Desc: White/Green Paint on Metal Frame	061713430-0002	8/2/2017	8/11/2017	<0.0080 % wt
PB03 Site: 1st Floor Dining Room Desc: Red/Green Paint on Metal Frame	061713430-0003	8/2/2017	8/11/2017	0.025 % wt
PB04 Site: 2nd Floor Desc: Brown Paint on Sheetrock	061713430-0004	8/2/2017	8/11/2017	<0.0080 % wt
PB05 Site: 1st Floor Center Core Desc: White Paint on Plaster Ceiling	061713430-0005	8/2/2017	8/11/2017	<0.0080 % wt
PB06 Site: 2nd Floor Desc: Yellow Paint on Concrete Ceiling	061713430-0006	8/2/2017	8/11/2017	<0.0080 % wt

Michelle McGowan, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY Lab ID 102344 is accredited by the AIHA-LAP, LLC in the Environmental Lead accreditation program for Lead in Paint, CT PH-0249, NYS ELAP 11469

Initial report from 08/11/2017 14:42:54

061713430

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 Engineering, Fire &
 Environmental Services

BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name): John Vez	Bill To: Accounts Payable
Company: EFI Global, Inc.	Address: Same
Address: 155 West Street Suite 6	City, State, Zip: Same
City, State, Zip: Wilmington, MA 01887	Telephone: 800-659-1202
	Fax: 978-688-5494

Project Information

Project No./ Description: 98350-06352	Kelly Building - Fernald School Waltham MA.
Email Report to: Lynda_McDermott@efiglobal.com	john.vez@efiglobal.com
Alternate: sean.cassidy@efiglobal.com	

Requested Turnaround Time:

<input type="checkbox"/> RUSH	<input type="checkbox"/> 1 day	<input type="checkbox"/> 2 day	<input type="checkbox"/> 3 day	<input checked="" type="checkbox"/> 5 day
-------------------------------	--------------------------------	--------------------------------	--------------------------------	---

Media and Methodology

Type of Analysis: PB - Flame AAS	Check for Positive Stop: <input type="checkbox"/>
Notes: Analyze all plaster and joint compound samples	Date Collected: 8/2-8/3/17

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
PB01	White Paint on Plaster Metal Ceiling Tile	1 st Floor Dining Room		
PB02	White/Green Paint on Metal Frame	" " " "		
PB03	Red/Green " " " "	" " " "		
PB04	Brown Paint on Sheetrock	2 nd Floor		
PB05	White Paint on Plaster Ceiling	1 st Floor Center Core	17 AUG 18 11:59:37	EFI GLOBAL CARLETON MA
PB06	Yellow Paint on Concrete Ceiling	2 nd Floor		
	PB - <i>[Signature]</i> 08/11/17			

Total Number of Samples Submitted: _____

Samplers Name: John Vez

Relinquished By (Client): *[Signature]*

Received By (Lab): *[Signature]*

Samplers Signature: *[Signature]*

Date: 8-8-17

Time: 9:37

RECEIVED
 AUG 07 2017
 By: MM 030

ATTACHMENT E

PHOTOGRAPHS

Photographs



Grey ceramic floor tile grout



ACM Interior window glazing (Note- most windows were removed and stored in the Window Storage Room on the 1st Floor)



12"x12" white mottled floor tile, residual black mastic, and glazed block grout



Grey exterior window caulk



ACM 9"x9" grey floor tile and associated non-ACM black mastic



1'x1' white squiggle ceiling tiles and associated glue daubs.



ACM pipe insulation and associated debris



ACM white skim coat on concrete ceiling and ACM pipe insulation



Black main field roof tar



Yellow duct sealant



ACM exterior door caulk, and non-ACM brick and mortar



Exterior grey stairwell panel caulk

ATTACHMENT F

PCB LABORATORY REPORT

September 22, 2017

John Vaz
EFI Global
155 West Street
Wilmington, MA 01887

Project Location: Fernald School-Kelly Bldg, Waltham
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 17I0447

Enclosed are results of analyses for samples received by the laboratory on September 12, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive style with a large, prominent 'K' and 'M'.

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EFI Global
155 West Street
Wilmington, MA 01887
ATTN: John Vaz

REPORT DATE: 9/22/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 1710447

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Fernald School-Kelly Bldg, Waltham

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCB-101	1710447-01	Caulk		SW-846 8082A	
PCB-102	1710447-02	Caulk		SW-846 8082A	
PCB-103	1710447-03	Caulk		SW-846 8082A	
PCB-104	1710447-04	Caulk		SW-846 8082A	
PCB-105	1710447-05	Caulk		SW-846 8082A	
PCB-106	1710447-06	Caulk		SW-846 8082A	
PCB-107	1710447-07	Caulk		SW-846 8082A	
PCB-108	1710447-08	Caulk		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:**S-01**

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl**

1710447-01[PCB-101], 1710447-02[PCB-102], 1710447-03[PCB-103], 1710447-04[PCB-104], 1710447-05[PCB-105], 1710447-06[PCB-106]

Decachlorobiphenyl [2C]

1710447-01[PCB-101], 1710447-02[PCB-102], 1710447-03[PCB-103], 1710447-04[PCB-104], 1710447-05[PCB-105], 1710447-06[PCB-106]

Tetrachloro-m-xylene

1710447-01[PCB-101], 1710447-02[PCB-102], 1710447-03[PCB-103], 1710447-04[PCB-104], 1710447-05[PCB-105], 1710447-06[PCB-106]

Tetrachloro-m-xylene [2C]

1710447-01[PCB-101], 1710447-02[PCB-102], 1710447-03[PCB-103], 1710447-04[PCB-104], 1710447-05[PCB-105], 1710447-06[PCB-106]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-101

Sampled: 9/12/2017 13:00

Sample ID: 1710447-01

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1221 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1232 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1242 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1248 [1]	3800	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1254 [1]	1600	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1260 [2]	830	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1262 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Aroclor-1268 [1]	ND	190	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 11:55	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 11:55	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 11:55	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 11:55	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 11:55	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-102

Sampled: 9/12/2017 13:00

Sample ID: 1710447-02

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1221 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1232 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1242 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1248 [1]	4000	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1254 [1]	1700	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1260 [2]	920	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1262 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Aroclor-1268 [1]	ND	330	mg/Kg	2000		SW-846 8082A	9/16/17	9/20/17 12:13	TG
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			9/20/17 12:13	
Decachlorobiphenyl [2]	*	30-150			S-01			9/20/17 12:13	
Tetrachloro-m-xylene [1]	*	30-150			S-01			9/20/17 12:13	
Tetrachloro-m-xylene [2]	*	30-150			S-01			9/20/17 12:13	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-103

Sampled: 9/12/2017 13:05

Sample ID: 1710447-03

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1221 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1232 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1242 [2]	19	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1248 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1254 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1260 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1262 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Aroclor-1268 [1]	ND	9.2	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:31	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 12:31	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 12:31	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 12:31	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 12:31	

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Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-104

Sampled: 9/12/2017 13:05

Sample ID: 1710447-04

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1221 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1232 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1242 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1248 [2]	44	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1254 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1260 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1262 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Aroclor-1268 [1]	ND	9.8	mg/Kg	50		SW-846 8082A	9/16/17	9/20/17 12:48	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 12:48	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 12:48	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 12:48	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 12:48	

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Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-105

Sampled: 9/12/2017 13:10

Sample ID: 1710447-05

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1221 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1232 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1242 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1248 [1]	3000	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1254 [1]	1200	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1260 [2]	670	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1262 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Aroclor-1268 [1]	ND	200	mg/Kg	1000		SW-846 8082A	9/16/17	9/20/17 13:06	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 13:06	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 13:06	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 13:06	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 13:06	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-106

Sampled: 9/12/2017 13:10

Sample ID: 1710447-06

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1221 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1232 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1242 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1248 [1]	190	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1254 [1]	480	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1260 [1]	390	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1262 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Aroclor-1268 [1]	ND	45	mg/Kg	250		SW-846 8082A	9/16/17	9/20/17 13:24	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 13:24	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 13:24	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 13:24	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 13:24	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-107

Sampled: 9/12/2017 13:15

Sample ID: 1710447-07

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1221 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1232 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1242 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1248 [1]	1.9	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1254 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1260 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1262 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Aroclor-1268 [1]	ND	0.72	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 13:59	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		107	30-150					9/20/17 13:59	
Decachlorobiphenyl [2]		109	30-150					9/20/17 13:59	
Tetrachloro-m-xylene [1]		107	30-150					9/20/17 13:59	
Tetrachloro-m-xylene [2]		111	30-150					9/20/17 13:59	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Kelly Bldg, Walth

Sample Description:

Work Order: 1710447

Date Received: 9/12/2017

Field Sample #: PCB-108

Sampled: 9/12/2017 13:15

Sample ID: 1710447-08

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1221 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1232 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1242 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1248 [1]	3.2	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1254 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1260 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1262 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Aroclor-1268 [1]	ND	0.64	mg/Kg	4		SW-846 8082A	9/16/17	9/20/17 14:17	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		107	30-150					9/20/17 14:17	
Decachlorobiphenyl [2]		109	30-150					9/20/17 14:17	
Tetrachloro-m-xylene [1]		110	30-150					9/20/17 14:17	
Tetrachloro-m-xylene [2]		114	30-150					9/20/17 14:17	

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Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17I0447-01 [PCB-101]	B186385	0.532	10.0	09/16/17
17I0447-02 [PCB-102]	B186385	0.598	10.0	09/16/17
17I0447-03 [PCB-103]	B186385	0.544	10.0	09/16/17
17I0447-04 [PCB-104]	B186385	0.511	10.0	09/16/17
17I0447-05 [PCB-105]	B186385	0.503	10.0	09/16/17
17I0447-06 [PCB-106]	B186385	0.555	10.0	09/16/17
17I0447-07 [PCB-107]	B186385	0.552	10.0	09/16/17
17I0447-08 [PCB-108]	B186385	0.624	10.0	09/16/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B186385 - SW-846 3540C										
Blank (B186385-BLK1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	3.97		mg/Kg	4.00		99.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.75		mg/Kg	4.00		93.7	30-150			
Surrogate: Tetrachloro-m-xylene	3.95		mg/Kg	4.00		98.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.82		mg/Kg	4.00		95.5	30-150			
LCS (B186385-BS1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	3.7	0.20	mg/Kg	4.00		92.3	40-140			
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		86.9	40-140			
Aroclor-1260	3.2	0.20	mg/Kg	4.00		80.4	40-140			
Aroclor-1260 [2C]	2.9	0.20	mg/Kg	4.00		73.4	40-140			
Surrogate: Decachlorobiphenyl	3.59		mg/Kg	4.00		89.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.45		mg/Kg	4.00		86.2	30-150			
Surrogate: Tetrachloro-m-xylene	3.59		mg/Kg	4.00		89.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.52		mg/Kg	4.00		88.1	30-150			
LCS Dup (B186385-BSD1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	3.6	0.20	mg/Kg	4.00		90.9	40-140	1.57	30	
Aroclor-1016 [2C]	3.4	0.20	mg/Kg	4.00		84.3	40-140	2.96	30	
Aroclor-1260	3.2	0.20	mg/Kg	4.00		80.9	40-140	0.631	30	
Aroclor-1260 [2C]	3.0	0.20	mg/Kg	4.00		74.0	40-140	0.761	30	
Surrogate: Decachlorobiphenyl	3.63		mg/Kg	4.00		90.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.45		mg/Kg	4.00		86.2	30-150			
Surrogate: Tetrachloro-m-xylene	3.42		mg/Kg	4.00		85.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.31		mg/Kg	4.00		82.7	30-150			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PCB-101

SW-846 8082A

Lab Sample ID: 1710447-01 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	3800	
	2	0.000	0.000	0.000	3100	20.3
Aroclor-1254	1	0.000	0.000	0.000	1600	
	2	0.000	0.000	0.000	1500	6.5
Aroclor-1260	1	0.000	0.000	0.000	800	
	2	0.000	0.000	0.000	830	3.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-102

Lab Sample ID: 1710447-02 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	4000	
	2	0.000	0.000	0.000	3400	16.2
Aroclor-1254	1	0.000	0.000	0.000	1700	
	2	0.000	0.000	0.000	1700	0.0
Aroclor-1260	1	0.000	0.000	0.000	870	
	2	0.000	0.000	0.000	920	5.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-103

Lab Sample ID: 1710447-03 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: _____ (mm) GC Column (2): ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1242	1	0.000	0.000	0.000	19	
	2	0.000	0.000	0.000	19	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-104

Lab Sample ID: 1710447-04 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: _____ (mm) GC Column (2): ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	42	
	2	0.000	0.000	0.000	44	4.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-105

Lab Sample ID: 1710447-05 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	3000	
	2	0.000	0.000	0.000	2600	14.3
Aroclor-1254	1	0.000	0.000	0.000	1200	
	2	0.000	0.000	0.000	1100	8.7
Aroclor-1260	1	0.000	0.000	0.000	630	
	2	0.000	0.000	0.000	670	6.2

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-106

Lab Sample ID: 1710447-06 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	190	
	2	0.000	0.000	0.000	160	17.1
Aroclor-1254	1	0.000	0.000	0.000	480	
	2	0.000	0.000	0.000	470	2.1
Aroclor-1260	1	0.000	0.000	0.000	390	
	2	0.000	0.000	0.000	390	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-107

Lab Sample ID: 1710447-07 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	1.9	
	2	0.000	0.000	0.000	1.6	17.1

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-108

Lab Sample ID: 1710447-08 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	3.2	
	2	0.000	0.000	0.000	2.6	20.7

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

CERTIFICATIONS**Certified Analyses included in this Report**

Analyte	Certifications
----------------	-----------------------

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



Company Name: EFC Global
Address: 155 West St Suite 6 Wilmington MA
Phone:
Project Name:
Project Location: Fernald School - Kelly Sedy V. V. V.
Project Number:
Project Manager: Soke Vaz
Con-Test Quote Name/Number:
Invoice Recipient: Sean Cassidy
Sampled By: S. Vaz

Requested Turnaround Time:
 7-Day 10-Day
Due Date: 5 DAY TAT
Rush-Approval Required:
 1-Day 3-Day
 2-Day 4-Day
Data Delivery:
 Format: PDF EXCEL
 Other:
 CLP Like Data Pkg Required:
 Email To:
 Fax To #:

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Dorc Code
01	PCB-101	9/12	1300		X	SOL	
02	PCB-102	9/12	1300		X	"	
03	PCB-103	9/12	1305		X	"	
04	PCB-104	9/12	1305		X	"	
05	PCB-105	9/12	1310		X	"	
06	PCB-106	9/12	1310		X	"	
07	PCB-107	9/12	1315		X	"	
08	PCB-108	9/12	1315		X	"	

Comments:
 Email to: john-vaz @efiglobal.com
 Sean-Cassidy
 Lynda-mcbermott

Relinquished by: (signature)	Date/Time:	Detection Limit Requirements	Special Requirements
Received by: (signature)	9/12/17 1415	MA	MA MCP Required
Relinquished by: (signature)	9/12/17 1909	01	MCP Certification Form Required
Relinquished by: (signature)	9/12/17 1909		CT RCP Required
Relinquished by: (signature)	9/12/17 1900	Other	RCP Certification Form Required
Relinquished by: (signature)	9/12/17 1900		MA State DW Required
Relinquished by: (signature)			PWSID #

ANALYSIS REQUESTED

1 Matrix Codes:
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please define)

2 Preservation Codes:
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium Thiosulfate
 O = Other (please define)

3 Container Codes:
 A = Amber Glass
 G = Glass
 P = Plastic
 ST = Sterile
 V = Vial
 S = Summa Canister
 T = Tedlar Bag
 O = Other (please define)

PCB ONLY
 Soxhlet
 Non Soxhlet

Project Entity:
 Government
 Federal
 City
 Municipality
 21 J
 Brownfield
 MWRA
 School
 MBTA
 WRTA
 Chromatogram
 AIHA-LAP, LLC
 Other

con-test ANALYTICAL LABORATORY
 www.contestlabs.com
 NELAP and AIHA-LAP, LLC Accredited

39 Spruce St.
 East Longmeadow, MA. 01028
 P: 413-525-2332
 F: 413-525-6405
 www.contestlabs.com



Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client EFI Global
 Received By RLF Date 9/12/17 Time 1900
 How were the samples received? In Cooler T No Cooler On Ice T No Ice
 Direct from Sampling Ambient Melted Ice
 Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 3.8°C
 By Blank # Actual Temp -
 Was Custody Seal Intact? LA Were Samples Tampered with? LA
 Was COC Relinquished? FF Does Chain Agree With Samples? T
 Are there broken/leaking/loose caps on any samples? F
 Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent Information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T
 Are Sample labels filled out and legible? T
 Are there Lab to Filters? F Who was notified?
 Are there Rushes? F Who was notified?
 Are there Short Holds? F Who was notified?
 Is there enough Volume? T
 Is there Headspace where applicable? LA MS/MSD? LA
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? LA
 Do all samples have the proper pH? Acid LA Base LA

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:

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Suite 6
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October 3, 2017

Mr. Joseph Pedulla, MCPPO, CPM
Chief Procurement Officer
City of Waltham
610 Main Street
Waltham, Massachusetts 02452

Via Email: jpedulla@city.waltham.ma.us

RE: **Asbestos & Hazardous Materials Survey Report
Shriver & CERC Buildings
Former Fernald School
200 Fernald Road
Waltham, Massachusetts
EFI Project No. 98350-06362**

Dear Mr. Pedulla:

EFI Global Inc. (EFI) is pleased to provide this survey report to the City of Waltham for a pre-demolition hazardous materials survey of the interior and exterior of the Shriver and CERC Buildings, located on the campus of the former Fernald School in Waltham, Massachusetts (Site). EFI Global, Inc. (EFI) performed the survey on August 3-4, 2017 using fully trained and licensed building inspectors. The pre-demolition inspection included a survey of the building for suspect asbestos-containing materials, sampling of representative coatings for lead-based paint, sampling for suspect PCB-containing building materials, and an inventory of universal waste and other hazardous materials. Additionally, EFI incorporated the results of EFI's 2010 Hazardous Materials Survey, conducted for portions of the site buildings, into this report.

EFI is pleased to provide environmental consulting services to City of Waltham. If you have any questions regarding the contents of this report, or are in need of additional information, please do not hesitate to contact Sean Cassidy at 978-886-3712. Thank you for this opportunity to serve your environmental needs.

Sincerely,

EFI Global, Inc.

A handwritten signature in black ink, appearing to read 'John Vaz'.

John Vaz
Project Manager

A handwritten signature in black ink, appearing to read 'Sean E. Cassidy'.

Sean E. Cassidy, CIEC
District Manager

ASBESTOS & HAZARDOUS MATERIALS SURVEY REPORT

**SHRIVER AND CERC BUILDINGS
FORMER FERNALD SCHOOL
200 TRAPELO ROAD
WALTHAM, MASSACHUSETTS**



Shriver Building



CERC Building

Prepared for:

**City of Waltham
610 Main Street
Waltham, MA 02452**

Prepared by:



**155 West Street, Suite 6
Wilmington, Massachusetts 01887**

EFI Project Number: 98350-06362

October 3, 2017

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ATTACHMENTS

ATTACHMENT A – SAMPLE LOCATION DRAWINGS

ATTACHMENT A-1 – CERC BUILDING

ATTACHMENT A-1 – SHRIVER BUILDING (FROM 2010 EFI HAZMAT REPORT)

ATTACHMENT B - TABLES

TABLE 1 – ASBESTOS-CONTAINING MATERIALS INVENTORY

TABLE 2 – UNIVERSAL WASTE & HAZARDOUS MATERIALS INVENTORY

TABLE 3 – PCB SAMPLING RESULTS

ATTACHMENT C - ASBESTOS LABORATORY REPORT

ATTACHMENT C-1 – CERC BUILDING OFFICE INTERIOR

ATTACHMENT C-2 – CERC BUILDING ROOF/BASEMENT (FROM 2010 EFI HAZMAT REPORT)

ATTACHMENT C-3 – SHRIVER BUILDING INTERIOR/EXTERIOR (FROM 2010 EFI HAZMAT REPORT)

ATTACHMENT C-4 – SHRIVER BUILDING ROOF

ATTACHMENT D - LEAD PAINT LABORATORY REPORT

ATTACHMENT D-1 – CERC BUILDING

ATTACHMENT D-2 – SHRIVER BUILDING (FROM 2010 EFI HAZMAT REPORT)

ATTACHMENT E – PHOTOGRAPHS

ATTACHMENT E-1 – CERC BUILDING/SHRIVER BUILDING ROOF

ATTACHMENT E-2 – SHRIVER BUILDING/CERC BUILDING ROOF (FROM 2010 EFI HAZMAT REPORT)

ATTACHMENT F – PCB LABORATORY REPORT

1.0 EXECUTIVE SUMMARY

This report presents the results of the pre-demolition survey for asbestos-containing materials (ACM), lead-based paint (LBP), Universal Waste (e.g., PCB- and mercury-containing electrical equipment) and other hazardous materials (OHM) at the Shriver and CERC Buildings, located on the campus of the former Fernald School in Waltham, Massachusetts (Site).

EFI's asbestos and hazardous materials survey of the Site building was conducted on August 3-4, 2017. The scope of work for EFI's limited survey was to perform a walkthrough of the building to identify the types, locations, and quantities of ACMs and perform laboratory testing of suspect ACMs. In addition, EFI performed a lead paint screening of a representative number of painted/coated building components, and inventoried Universal Waste and OHMs present on the interior and exterior of the building. The purpose of EFI's limited survey was to identify and quantify ACMs and OHMs that may need to be removed prior to building demolition activities and to identify LBP that may present on the interior and exterior of the site building so that construction personnel can be made aware of the presence of LBP. Additionally, EFI incorporated the findings of EFI's 2010 Hazardous Materials Survey report, which was conducted on portions of the site buildings, within this report.

The Shriver building is a four story office/laboratory building with a basement, totaling approximately 55,000 square feet in area. The building is constructed of concrete with brick and concrete masonry unit (CMU) walls. Interior finishes mainly consist of gypsum board walls, vinyl floor tiles, and acoustic ceiling tiles.

The CERC building is a single story office building with a basement, totaling approximately 26,000 square feet in area. The building is constructed of brick and CMU walls over a steel frame. Interior finishes consist of gypsum board walls, vinyl floor tile, carpeted flooring, and acoustical ceiling tiles. The two buildings are connected by an enclosed walkway. The Site buildings have been vacant for several years.

Asbestos

Section 2.0 outlines the procedures and results of the asbestos survey. The survey involved locating, quantifying, and evaluating the condition of accessible suspect asbestos-containing materials using bulk sampling and visual inspection techniques. Additionally, the findings of EFI's 2010 Hazardous Materials Report were also incorporated in this report, and quantities and locations of confirmed asbestos containing materials (ACM) were reviewed during EFI's 2017 inspection.

The asbestos inspection was performed by Commonwealth of Massachusetts-licensed asbestos inspectors Mr. Chris Eustis and Mr. John Vaz. A total of 100 samples of suspect asbestos-containing materials (ACM) were analyzed for asbestos content during the survey. EFI's inspectors performed the visual inspection and bulk sampling of suspect ACMs on Site and submitted them under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. The findings of this report are based upon observations of accessible materials and the analysis of representative bulk samples collected.

The locations of ACMs identified herein are depicted on the sample location drawings presented in Attachment A. Asbestos and hazardous materials inventories (Table 1 & Table 2, respectively),

indicating the types and quantities of asbestos and hazardous materials identified during the survey are presented in Attachment B. Copies of the asbestos laboratory analytical reports are presented in Attachment C. A copy of the 2010 EFI report's laboratory analytical results is also included in Attachment C.

The following suspect ACMs sampled by EFI were reported by EMSL as containing greater than or equal to one percent asbestos, the Massachusetts limit for classification as ACM:

Shriver Building

- Red duct sealant
- Transite fume hoods*
- Transite bench tops*
- 12"x12" floor tile and associated mastic*
- 2'x4' lengthwise fissure ceiling tile*
- Fire door insulation*
- Carpet mastic*
- Medium diameter pipe fitting on fiberglass*/**
- Caulking around elevator*
- White/pinkish sink undercoating*
- Textured paint on concrete*
- Wood wall panel mastic*
- Black sink undercoating*
- Residual floor tile mastic*
- Transite fume exhaust pipe*
- Green linoleum mastic*
- Brown caulk at roof deck*
- Textured concrete*
- Black paper/mastic on fiberglass HVAC insulation*
- Generator exhaust insulation*
- Black and white 9"x9" floor tile and associated black mastic*
- Transite paneling associated with elevator equipment panels*
- Transite/paper/electrical wiring insulation in electrical switchboxes/switchgear*
- Transite window panels*
- Black/yellow mastic associated with 12"x12" white with tan floor tile*
- 12"x12" beige with brown floor tile*

CERC Building

- 9"x9" tan floor tile and associated black mastic
- 9"x9" white streak floor tile and associated black mastic
- Grey window glazing
- 9"x9" grey streak floor tile and associated black mastic
- Residual black mastic
- 9"x9" brown floor tile and associated black mastic
- 9"x9" blue streak floor tile and associated black mastic
- Pipe fitting insulation
- Grey window frame caulk
- Black sink undercoat
- 12"x12" beige mottled floor tile
- Mudded fittings of fiberglass pipe insulation*
- Water tank insulation*
- Base flashing roof tars/felts*
- Perimeter flashing tars/felts*
- Flex connectors*

*From 2010 EFI Hazardous Materials Report

**<1% (i.e., trace) asbestos content. Although not considered to be an ACM, waste generated from handling this material must be managed as asbestos-containing waste material.

If suspect ACMs other than the above-referenced materials are identified during demolition

activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

Based on the laboratory results and EFI's visual observations, it is recommended that asbestos-containing materials identified at the Site building be properly removed and disposed by a Massachusetts-licensed asbestos abatement contractor prior to the start of demolition activities.

Lead-Based Paint

Section 3.0, outlines the procedures and results of the lead paint survey. During the survey, EFI performed limited testing for lead-based paint in accessible areas of the building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance with USEPA method SW846-7420. Paint chip samples collected from the CERC building interior contained detectable concentrations of lead. Additionally, the findings of EFI's 2010 Hazardous Materials Report were also incorporated in this report, which indicated the presence of paint containing detectable concentrations of lead throughout the interior of the Shriver building and exterior of both buildings.

It is recommended that construction or demolition personnel conducting demolition work at the Site building comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site. The analytical results of the testing performed by EFI, including location, building component, and percent lead for each interior/exterior building component tested are presented in Attachment D. A copy of results of lead screening from the 2010 EFI Report is also included in Attachment D.

Universal Waste

Section 4.0 outlines the procedures and results of the Universal Waste survey. EFI conducted a visual inspection for the presence of PCB- and/or mercury-containing fluorescent light fixture components within the interior of the building. EFI identified suspected PCB-and di (2-ethylhexyl) phthalate (DEHP)-containing light ballasts, and mercury-containing fluorescent light bulbs throughout the building. It is recommended that identified Universal Waste at the Site building be properly removed, transported and disposed by a qualified Contractor. An inventory of Universal Waste identified during EFI's survey is presented in Attachment B.

Other Hazardous Materials

Section 5.0 outlines the procedures and results of the OHM survey/inventory. Other hazardous materials observed within the Site building included mercury thermostats/switches, emergency exit signs/lights/strobes (lead acid batteries), and miscellaneous containerized wastes. It is recommended that the identified Hazardous Materials at the Site building be properly removed, transported, and disposed by a qualified contractor. An inventory of OHMs identified during EFI's survey is presented in Attachment B.

Limitations

This report is intended for the sole use of the City of Waltham and is not to be used as a bidding document. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user. This investigation was performed to identify readily accessible and visible hazardous materials, however, it should not be assumed that all

hazardous materials in the building have been identified due to issues relating to accessibility of rooms, inaccessible building areas and wall/ceiling cavities. EFI's survey did not include an evaluation of the Site building for underground steam lines, subsurface foundation damp-proofing, and underground transite sewer/water piping.

EFI's professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

2.0 ASBESTOS CONTAINING MATERIALS SURVEY

2.1 SAMPLING METHODOLOGY

The survey was performed by USEPA-accredited and Commonwealth of Massachusetts licensed asbestos inspectors. EFI conducted a thorough inspection of accessible areas of the buildings. Limited exploratory demolition was performed on the interior and exterior of the buildings to evaluate the potential presence of hidden asbestos-containing materials using hand tools. Bulk samples representing individual homogenous areas of suspect materials were collected in a randomly distributed manner, in accordance with the methods outlined below.

Building materials exist in the form of thermal systems insulation (TSI), surfacing materials, and miscellaneous materials. The following illustrates the sampling strategy implemented by EFI:

- (a) Surfacing materials (e.g., wall and ceiling plaster) - In a randomly distributed manner, collect bulk samples of surfacing materials, representative of each homogeneous area, and not assumed to be ACM.
 - (1) Collect at least three bulk samples from each homogeneous area that is less than or equal to 1,000 ft².
 - (2) Collect at least five bulk samples from each homogeneous area that is greater than 1,000 ft², but less than or equal to 5,000 ft².
 - (3) Collect at least seven bulk samples from each homogeneous area that is greater than 5,000 ft².
- (b) Thermal systems insulation (e.g., pipe fitting insulation, tank insulation, etc.)
 - (1) In a randomly distributed manner, collect at a minimum, three (3) bulk samples of thermal systems insulation material, representative of each homogeneous area, and not assumed to be ACM.
 - (2) Collect, at a minimum, one (1) bulk sample of patched thermal systems insulation, representative of each homogenous area, and not assumed to be ACM, providing the section of patch was less than 6 linear or square feet.
 - (3) Collect, at a minimum, three (3) representative bulk samples of each insulated mechanical system not assumed to be ACM, including, but not limited to cementitious material used on pipe fittings such as tees, elbows, or valves.

Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.

- (4) Bulk samples are not required to be collected from any homogeneous area where the accredited asbestos inspector has determined that the thermal systems insulation is a non-suspect material (i.e., fiberglass, foam glass, rubber, or any other non-ACM).
- (c) Miscellaneous materials (e.g., floor and ceiling tiles) - Collect, at a minimum, two (2) representative bulk sample of each miscellaneous material assumed to be ACM, including, but not limited to ceiling tiles, floor tiles, associated floor tile mastic, etc. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.

2.2 ASBESTOS-CONTAINING MATERIALS

The following suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos:

Shriver Building

- Pink fiberboard over Styrofoam board
- Black tar on roof deck
- Black tar of roof flashing
- White penetration sealant
- Grey seam sealant
- Black stanchion sealant
- 2'x4' ceiling tile, sheetrock type*
- Sheetrock*
- Joint compound*
- Joint tape*
- Seam caulk*
- Tan epoxy floor*
- 4" black cove base and associated brown mastic*
- Small diameter pipe fitting on fiberglass*
- Black vapor barrier/flooring*
- Interior window caulk*
- Skim coat on concrete*
- Grey sealant on metal fume hood exhaust*
- Ceramic wall tile grout*
- Ceramic floor tile grout*
- Glue around metal window panels*
- Plaster skim coat*
- Plaster base coat*
- Blue/grey sheet flooring*
- 2'x4' fissured ceiling tile*
- 2'x4' cratered ceiling tile*
- Grey cove base mastic*
- 12"x12" white with tan floor tile*/**
- Faux marble floor tile and associated mastic*
- Grey cove base*
- Red sealant on electrical conduit*
- 12"x12" grey with black floor tile and associated brown mastic*
- 12"x12" white with grey speck floor tile and associated yellow mastic*
- Silver door caulking*
- Grey HVAC seam sealant*
- Brown mastic associated with 12"x12" white with brown streak floor tile*
- 12"x12" grey with streaks floor tile and associated off-white mastic*
- Lab tops*
- 6" grey cove base and associated yellow & brown mastic*
- Black terrazzo flooring*
- Reddish skim on floor*
- White stone pattern linoleum*
- Black mastic associated with 12"x12" beige with brown floor tile*
- Grey rubber flooring and associated yellow mastic*
- Tan mastic on wall*

- Flange pipe gasket*
- Brown window caulking*
- Brown window glazing*
- Grey window caulking*
- Black window glazing*
- Textured skim coat on concrete columns*
- Grey window glazing at concrete windows*
- White skim plaster on front entry overhang*
- Grey base plaster on front entry overhang*
- Tar & gravel roofing tars/felts*
- Gypsum roof deck*
- White caulking on PVC roof flashing/penetrations*
- Grey duct seam caulk*
- Green linoleum*/**
- Styrofoam ceiling tile*
- Grey caulk at roof deck*
- 2'x2' smooth ceiling tile*
- White caulk on ceiling tile grid*
- Textured ceiling in stairwells*

CERC Building

- Yellow carpet mastic
- Black cove base and associated white mastic
- White wall tile grout
- 2'x4' smooth ceiling tile
- 2'x4' crow feet ceiling tile
- Grey floor tile grout
- Sheetrock
- Joint compound
- Grey cove base and associated yellow mastic
- Grey ceramic wall tile adhesive
- White ceramic floor tile adhesive
- 2'x2' crow feet ceiling tile
- Grey wallboard panel
- 2'x4' smooth white dotted ceiling tile
- 12"x12" white streak floor tile and associated yellow mastic and grey leveler
- 12"x12" black floor tile and associated yellow mastic
- Blue sheet flooring and associated white mastic
- White sink undercoat
- 2'x4' rough finish ceiling tile
- 2'x2' rough finish ceiling tile
- Beige cove base and associated beige mastic
- Brown cove base and associated off-white adhesive
- 12"x12" grey dot floor tile and associated yellow mastic
- White mastic associated with 12"x12" beige mottled floor tile
- White mud on fiberglass caps*
- 2'x4' white speck ceiling tile*
- 2'x4' white fissured ceiling tile*
- 2'x4' white textured ceiling tile*
- Silver duct sealant*
- Black caulking on roof vents*
- Black built up roofing tars/felts*
- Gypsum roof deck*
- Paper behind metal cladding underneath windows

*From 2010 EFI Hazardous Materials Report

**To be managed as ACM due to ACM mastic contamination

The types, locations and estimated quantities of ACMs identified during the survey are presented in Attachment B.

Samples of suspect asbestos-containing materials were submitted under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory.

Samples were analyzed with a standard 5-day turnaround time using polarized light microscopy with dispersion staining (PLM/DS) in accordance with United States Environmental Protection Agency (USEPA) Method 600/R-93/116. Copies of the asbestos laboratory analytical reports are presented in Attachment C. A copy of the 2010 EFI report's laboratory analytical results is also included in Attachment C.

By using the PLM/DS method, a trained microscopist is able to identify and distinguish between asbestos group minerals and other fibrous materials such as cellulose (paper), mineral (rock), wood, or glass fiber. The quantity of each of these substances is estimated on a visual basis and recorded as a percent. If a material contains greater than or equal 1% asbestos, it is considered to be an asbestos-containing material under Massachusetts Department of Environmental Protection asbestos regulations.

EMSL is an EPA-accredited laboratory "Interim Asbestos Bulk Sample Analysis Quality Assurance Program". EMSL is also accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). The PLM/DS analytical method is modeled after 40 CFR Part 763, Subpart F, Attachment A: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples."

2.3 ADDITIONAL CONSIDERATIONS/ SPECIFIC RECOMMENDATIONS

EFI evaluated areas of the building that were reasonably accessible at the time of the survey. EFI's survey scope of work included visual inspection and assessment of areas behind sheetrock ceilings and walls only in locations where exploratory demolition using hand tools was possible.

EFI performed roof sampling during the survey to determine whether asbestos-containing roofing materials are present. The City of Waltham performed limited excavation to identify sub-grade foundation damp-proofing at the Site and no damp-proofing was identified.

EFI recommends that any hidden materials uncovered during future demolition activities and not identified within this report, should be assumed to be asbestos-containing until laboratory analysis proves otherwise. EFI's survey did not include an assessment for the presence of underground steam lines, and underground transite water/sewer lines that may be present at the Site.

2.4 GENERAL RECOMMENDATIONS

If suspect ACMs other than the above-referenced materials are identified during demolition activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

EFI recommends that asbestos-containing materials that are to be impacted by the proposed demolition activities at the Site building be properly removed and disposed by a Massachusetts-licensed Asbestos Abatement Contractor. The abatement must be completed in accordance with all requirements of Commonwealth of Massachusetts asbestos regulations; EPA regulations (40 CFR 61); and OSHA regulations (29 CFR 1926.1101), including all applicable local ordinances and policy statements.

3.0 LEAD-BASED PAINT INSPECTION AND METHODOLOGY

During the survey, EFI performed limited testing for lead-based paint in accessible areas of the interior

and exterior of the Site building, which involved the collection of paint chip samples from representative painted/coated surfaces. Lead analysis was conducted by EMSL with a standard 5-day turnaround time by EMSL using atomic absorption spectrometry (AAS) in accordance with US EPA method SW846-7420.

Additionally, EFI incorporated the results of a lead paint screening that was conducted in the Shriver Building as part of the 2010 EFI survey. The 2010 lead paint screening was conducted utilizing an RMD Model LPA1 X-Ray Fluorescence (XRF) Spectrum Analyzer, in order to identify the presence of lead paint. The RMD XRF utilized a 12 milliCurie Cobalt 57 radioactive source. The RMD LPA1 is a multi-channel analyzer of X-Ray fluorescence, controlled by a microprocessor which displays K-Shell spectra reading, indicates the precision of the instrument, provides depth index for each sample, averages the last several readings, and shows time in source seconds. All readings are displayed in milligrams per square centimeter (mg/cm²).

3.1 Summary of Findings

The EPA defines “lead-based paint” as paints or coatings containing lead in concentrations of greater than 0.5 percent by weight or 1.0 mg/cm². Based on the results of the 2010 XRF survey, lead-based paint was identified on the metal ladder in the 4th floor mechanical room to the left of the rear elevator, on the vinyl baseboards along the staircase treads and risers, and on the basement boiler. Additionally, readings containing detectable lead concentrations were identified throughout the Shriver building in the 2010 EFI report. A paint chip sample of white paint from the CERC building office area contained detectable concentrations of lead below 0.5% by weight.

A copy of the lead paint laboratory analytical report is presented in Attachment D. A copy of the 2010 EFI survey report’s XRF Analyzer results is included in Attachment D.

3.2 REGULATORY IMPLICATIONS AND RECOMMENDATIONS

Regulatory Implications

OSHA defines any detectable concentration of lead in paint as a potential lead exposure hazard to workers performing construction or demolition work that disturbs these surfaces, as even small concentrations of lead can result in unacceptable employee exposures. The level of exposure varies based upon the lead concentration, method of removal, and other workplace conditions. Since these conditions can vary greatly, the OSHA Lead Construction Standard (29 CFR 1926.62) requires exposure monitoring or the use of historical or objective monitoring data to ensure that employee exposures do not exceed the OSHA action level of 30 micrograms per cubic meter of air (µg/m³) and the OSHA permissible exposure limit (PEL) of 50 µg/m³.

OSHA requires that contractors monitor employee exposures if coated surfaces with paint containing lead are impacted during construction or demolition. Contractors and employers of staff who may disturb these materials are obligated to perform a negative exposure assessment in accordance with OSHA regulations to document that exposure to lead does not exceed the OSHA action level and the PEL.

OSHA states that the employer must treat employees as if they would be exposed above the PEL until the employer 1) performs an exposure assessment that documents that employees are not

exposed above the PEL or 2) can supply prior data regarding the same type of work which may exempt them from the standard. The OSHA Lead Construction Standard applies to many construction activities including the following:

- manual demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- abrasive blasting enclosure movement and removal;
- power tool cleaning;
- lead burning;
- using lead-containing mortar or spray painting with lead-containing paint;
- abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- cleanup activities where dry expendable abrasive are used; and
- any other task the employer believes may cause exposure in excess of the PEL.

The contractor must provide respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under the standard include a written compliance program, as well as, record keeping.

The contractor must also characterize and dispose of all dust, debris, and blast media in accordance with US EPA and Massachusetts Department of Environmental Protection regulations. This includes waste characterization of dust, debris and blast media generated during paint removal activities via the toxicity characteristic leaching procedure (TCLP).

Waste Disposal Implications

Waste disposal is governed by the EPA's Resource Conservation and Recovery Act (RCRA) regulations, which distinguish between solid wastes and hazardous wastes. Solid wastes include general construction debris and are subject to minimum handling, transportation, and landfill disposal requirements under RCRA regulations. Hazardous wastes, including certain lead-containing materials, are subject to restrictions designed to prevent the hazardous materials from entering the environment. Lead waste is classified as hazardous or non-hazardous based on the results of the TCLP testing. The leachability test measures whether or not lead leaches from the waste in excess of the regulated level of 5.0 mg/L. If the results of the TCLP analysis exceed this level, the waste must be handled, transported and disposed as a hazardous waste in an approved waste site, reclamation facility or incinerator site. EPA's regulations require the TCLP test be performed so that it represents the matrix and material of the waste stream.

Recommendations

It is recommended that lead TCLP samples be collected and analyzed prior to disposal. If the TCLP results for the building materials are below 5.0 mg/L, the materials can be disposed as construction debris. If the TCLP results are greater than 5.0 mg/L, the materials must be disposed as a lead hazardous waste.

It is also recommended that construction or demolition personnel conducting work at the facility comply with applicable OSHA Lead Construction Standard requirements during all construction

activities at the Site.

4.0 PCB/MERCURY-CONTAINING LIGHT FIXTURES (UNIVERSAL WASTE)

The primary concern regarding the disposal of used light ballasts is the health risk associated with exposure to PCBs. Fluorescent light ballasts contain a small capacitor that may contain high concentrations of PCBs (greater than 90% pure PCBs or 900,000 ppm). These chemical compounds were widely used as insulators in electrical equipment such as capacitors, switches, and voltage regulators through the late 1970s. Fluorescent light ballasts manufactured prior to 1979 may contain small quantities of PCBs. Recently manufactured fluorescent light ballasts are required to have "No PCB" labels. Light ballasts that do not have "No PCB" labels should be treated as PCB-containing and handled/disposed of accordingly. In addition, if light ballasts do not have "No PCB" labels, the manufacturer should be contacted to ascertain the presence of PCBs. Following the ban of PCB production, in 1979 manufacturers began using di (2-ethylhexyl) phthalate (DEHP) as a replacement to PCBs. DEHP is listed as a hazardous substance under the EPA's Superfund regulations. Generators discarding of light ballasts should take the same precautions with their DEHP ballasts as they do with their PCB ballasts to avoid any future liabilities.

The primary concern regarding the disposal of fluorescent light bulbs is the health risk associated with exposure to mercury. Fluorescent light bulbs contain a small quantity of mercury that can be harmful to the environment and to human health when improperly managed. Mercury is regulated under RCRA, which is administered by the EPA. To prevent these toxic materials from contaminating the environment, EFI recommends that fluorescent light bulbs be disposed/recycled of in accordance with applicable regulations.

4.1 SUMMARY OF FINDINGS

EFI conducted a survey to determine the estimated number of fluorescent light bulbs and ballasts located throughout the buildings. Investigative findings indicate that ballasts located within the building are either unlabeled or have labels that identify them as "No PCBs." It is recommended that all ballasts be removed from the building and disposed in accordance with applicable federal, state, and local regulations. EFI recommends recycling of fluorescent light bulbs in accordance with applicable state and federal regulations. A detailed inventory of fluorescent light tubes and ballasts is provided in Table 2 of Attachment B.

5.0 OTHER HAZARDOUS MATERIALS

EFI performed an inventory of hazardous chemicals, petroleum and mechanical equipment located within the building that will require special handling and disposal prior to building demolition activities. During the survey, EFI identified hydraulic doorstops, mercury thermostats/switches, lead acid batteries, equipment containing CFCs/refrigerant, suspect PCB-containing transformers, fire extinguishers, and various containerized wastes within the Site building. An inventory of the identified building-related hazardous materials is presented in Attachment B.

It is recommended that identified Other Hazardous Materials at the Site building be properly removed and disposed by a qualified contractor.

6.0 PCBs IN BUILDING MATERIALS

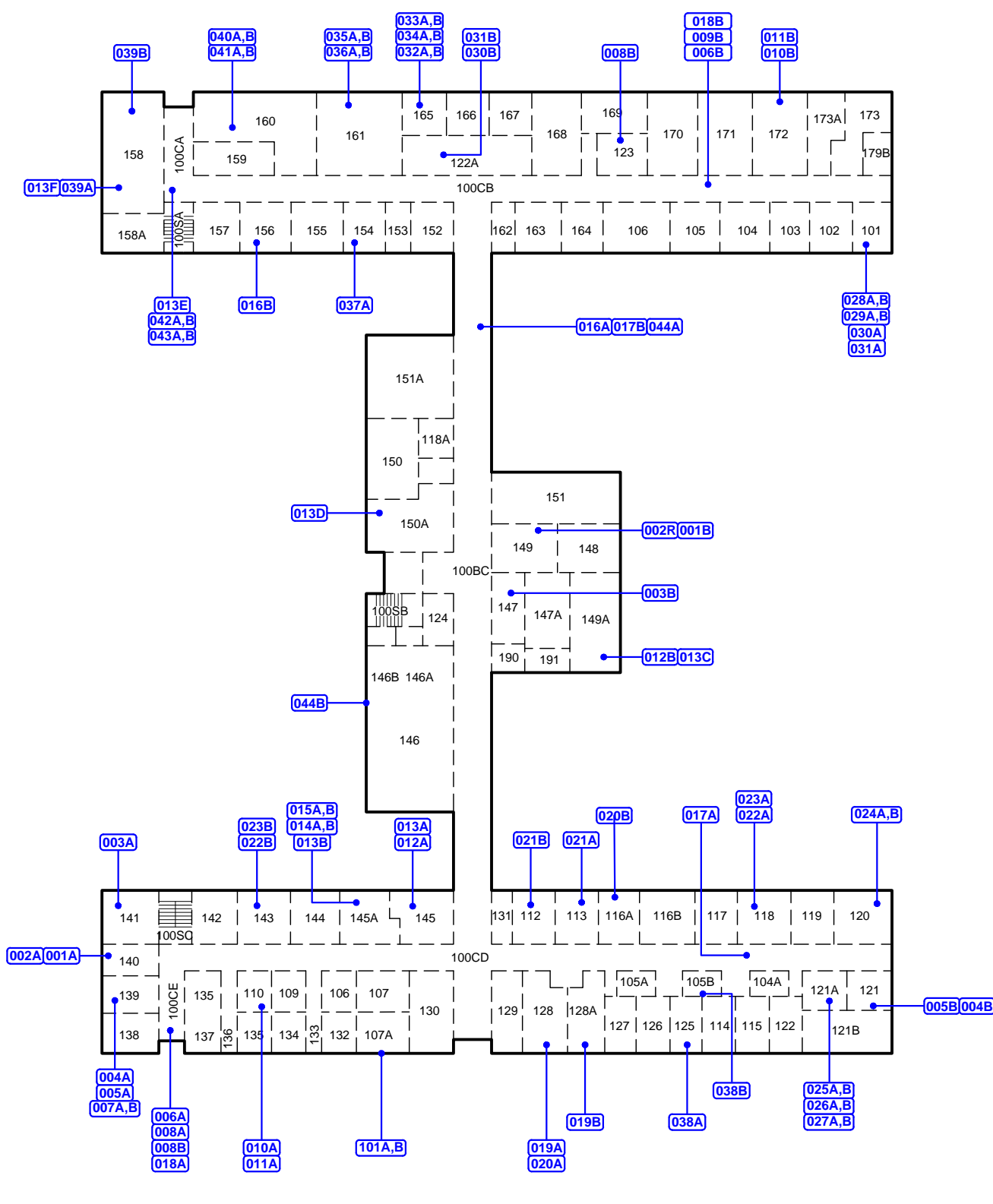
PCB sampling was conducted during a separate site visit on September 12, 2017 by John Vaz of EFI. EFI collected representative samples window and door caulking/glazing material identified during the walkthrough and submitted the samples to Con-Test Analytical Laboratory of East Longmeadow, Massachusetts. Samples were analyzed using EPA Method 8082 with Soxhlet extraction with a standard 5-day turnaround time.

All samples of door and window caulk/glazing analyzed by Con-Test were reported as containing a concentration of PCBs of greater than 50 parts per million (ppm). Therefore, these materials are considered "PCB bulk product waste" under 40 CFR 761.3, and must be removed and disposed at a facility permitted to accept PCB bulk product waste. In addition, it is likely that the PCB-containing caulking materials have leached into the adjacent brick/concrete materials. As such the adjacent material can be disposed as a PCB bulk product waste under a "Performance Based Disposal." Alternatively, the extent of leaching into the adjacent materials can be delineated via core sampling and laboratory analysis and subsequently removed and disposed as PCB bulk product waste under a "Self Implementing Plan", which would require EPA review and approval.

A copy of the laboratory report prepared by Con-Test is presented in Attachment F. A table summarizing PCB sampling results is presented in Attachment B.

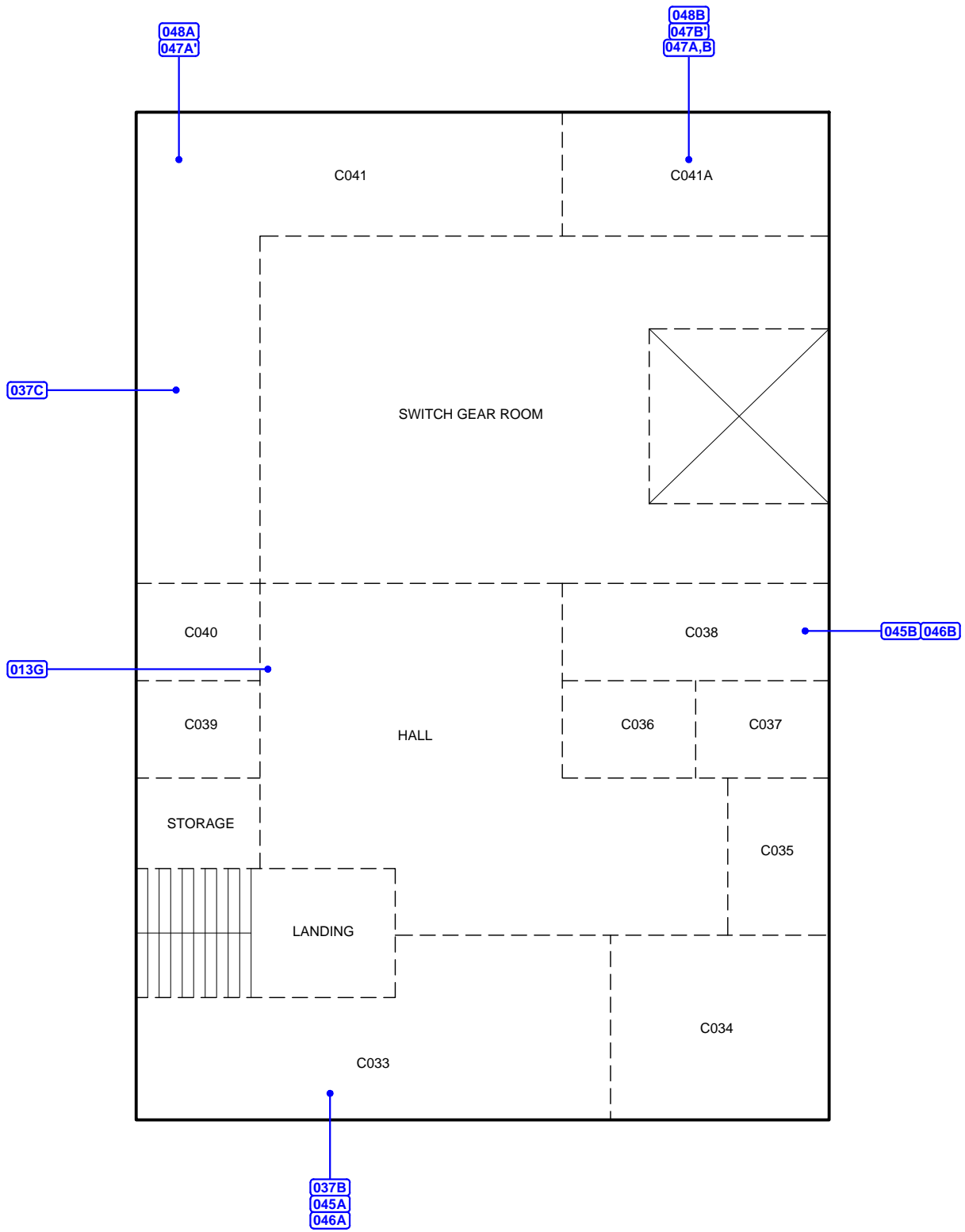
ATTACHMENT A

SAMPLE LOCATION DRAWINGS



NOT TO SCALE

<p>LEGEND</p> <p>001A SAMPLE LOCATION</p>	<p>1ST FLOOR</p> <p>SHIVER CENTER 200 TRAPELO RD. WALTHAM, MA 02452</p>	<p>EFI Global Engineering, Fire & Environmental Services</p> <table border="1"> <tr> <td>PN: 98350-06362</td> <td>FIGURE</td> </tr> <tr> <td>DT: 8/31/2017</td> <td>4</td> </tr> <tr> <td>DB: JE</td> <td>CB: LM</td> </tr> </table>	PN: 98350-06362	FIGURE	DT: 8/31/2017	4	DB: JE	CB: LM
PN: 98350-06362	FIGURE							
DT: 8/31/2017	4							
DB: JE	CB: LM							



NOT TO SCALE

LEGEND

001A SAMPLE LOCATION

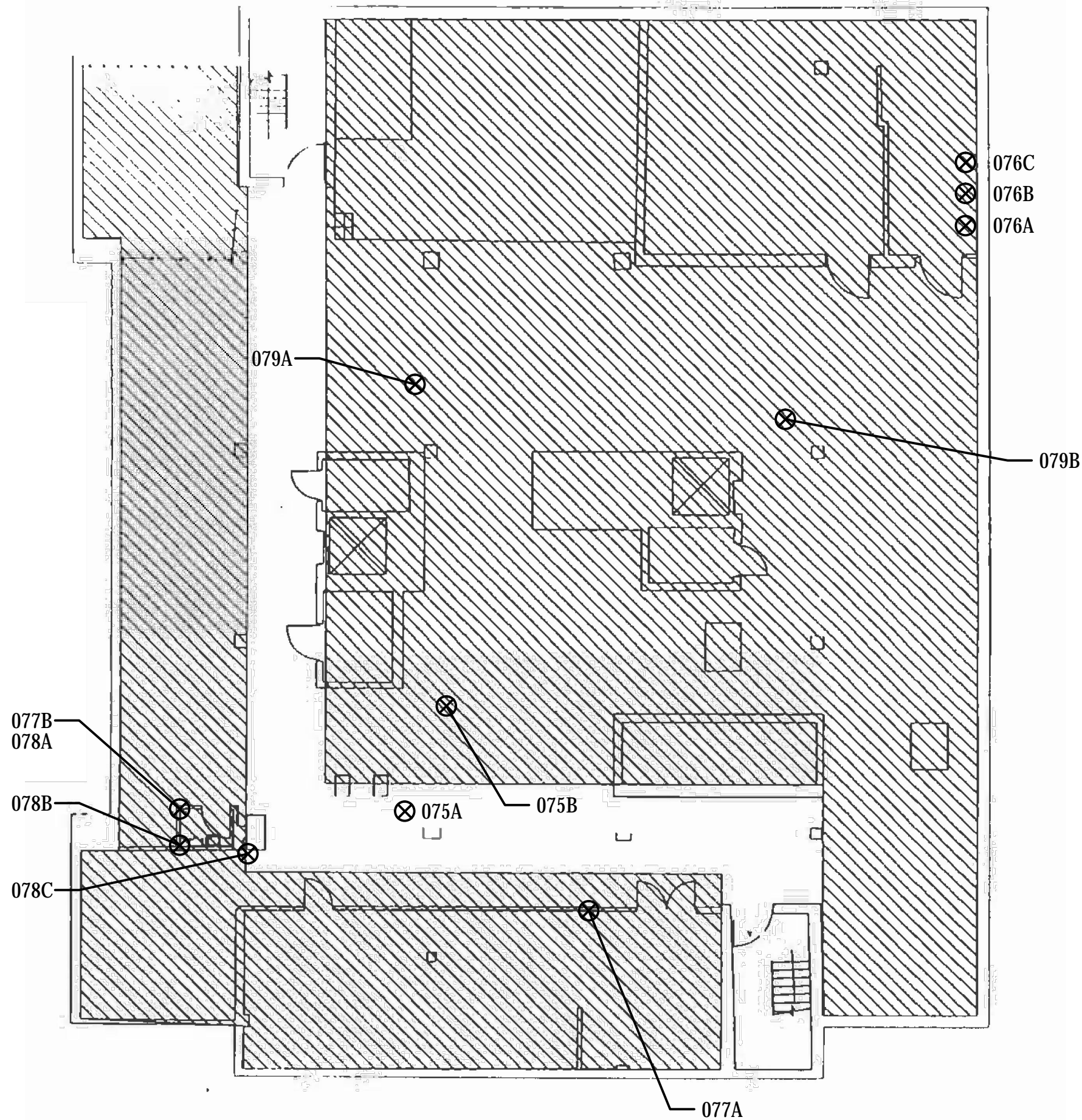
BASEMENT

CRC BUILDING
200 TRAPELO RD.
WALTHAM, MA 02452



PN:98350-06362
DT: 8/31/2017
DB:JE CB:LM

FIGURE
5



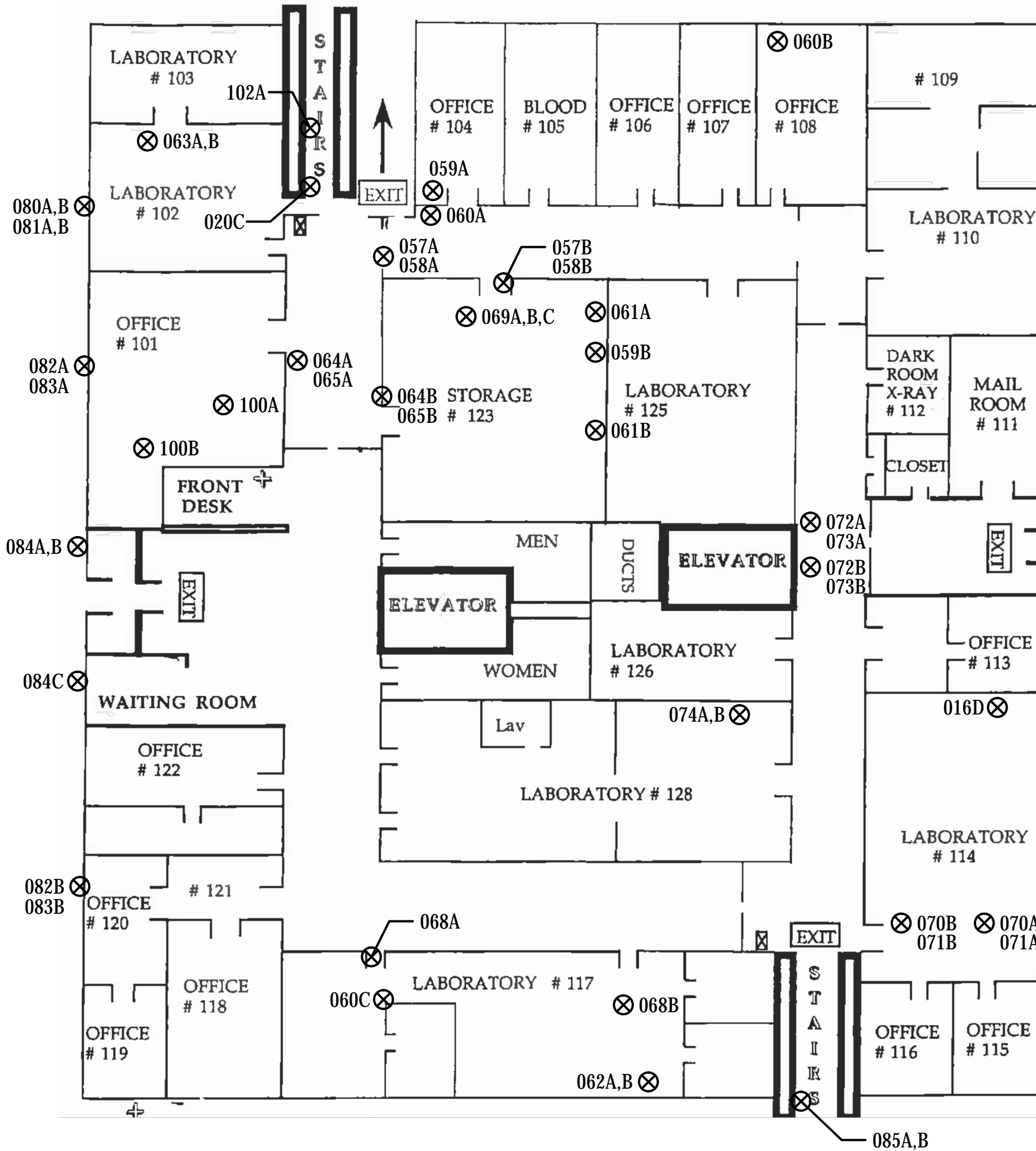
LEGEND

⊗ ASBESTOS SAMPLE LOCATION

NOTES

SHRIVER RESEARCH BLDG
200 TRAPELO RD, WALTHAM MA
BASEMENT FLOOR,
JOB# 98350-02344

DATE: APRIL 2010
SCALE: NTS



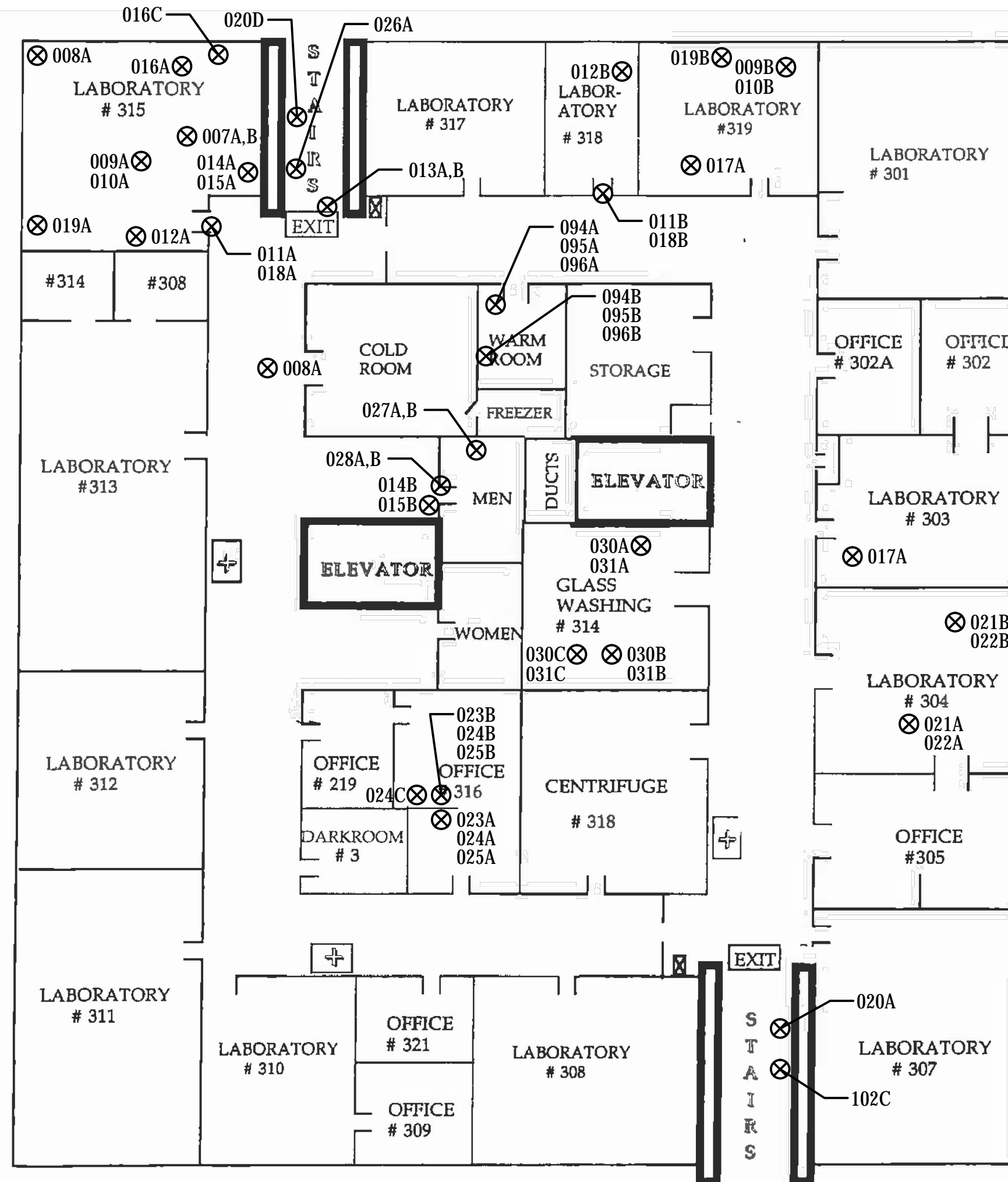
LEGEND

⊗ ASBESTOS SAMPLE LOCATION

NOTES

SHRIVER RESEARCH BLDG
200 TRAPELO RD, WALTHAM MA
1ST FLOOR, JOB# 98350-02344

DATE: APRIL 2010
SCALE: NTS



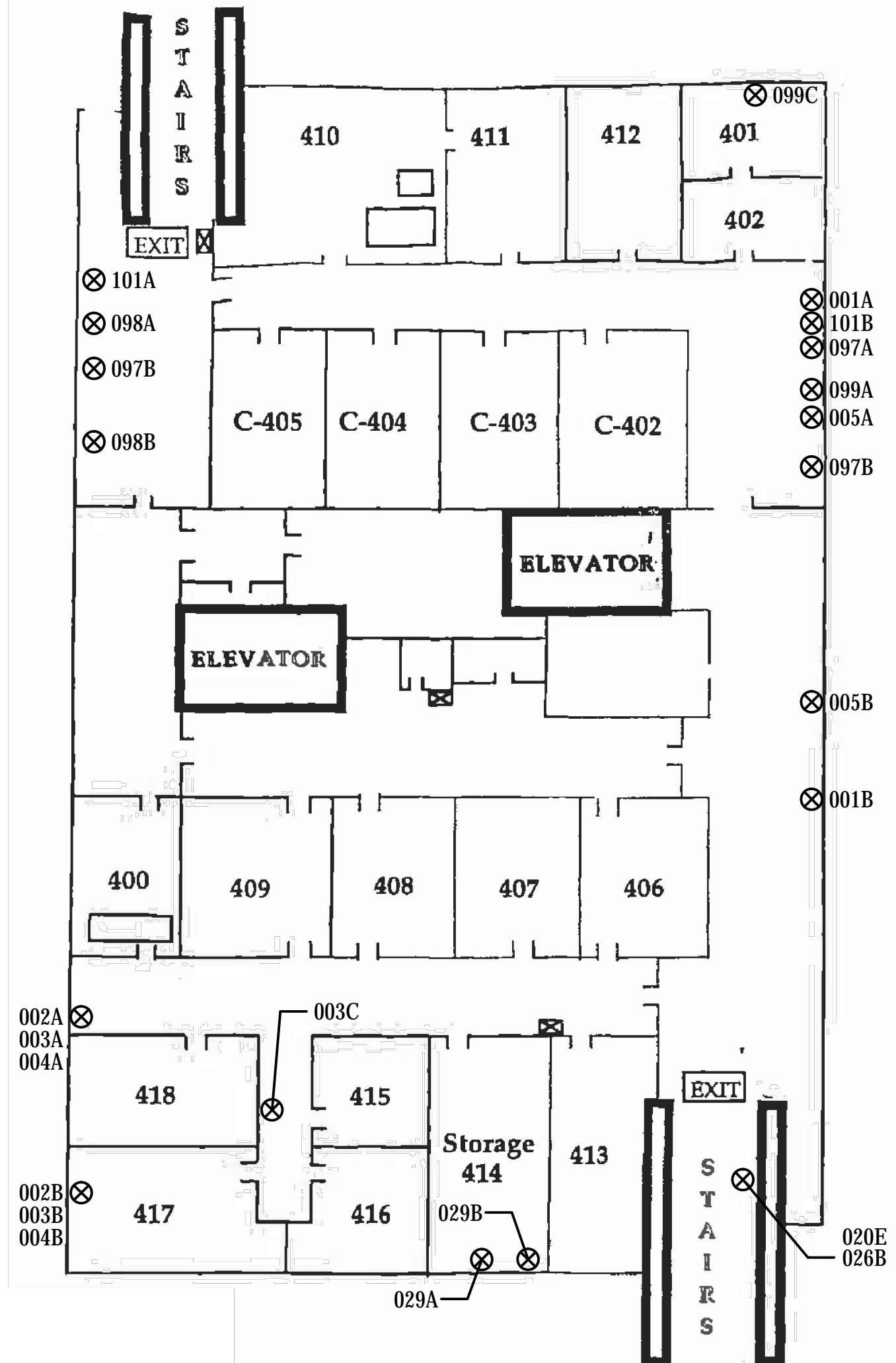
LEGEND

⊗ ASBESTOS SAMPLE LOCATION

NOTES

SHRIVER RESEARCH BLDG
 200 TRAPELO RD, WALTHAM MA
 3RD FLOOR, JOB# 98350-02344

DATE: APRIL 2010
 SCALE: NTS



LEGEND

⊗ ASBESTOS SAMPLE LOCATION

NOTES

SHRIVER RESEARCH BLDG
 200 TRAPELO RD, WALTHAM MA
 4TH FLOOR, JOB# 98350-02344

DATE: APRIL 2010
 SCALE: NTS

ATTACHMENT B

TABLES

Table I
Asbestos-Containing Materials
Fernald School
200 Trapelo Rd., Waltham, MA

Shriver Building

Material	Quantity	Location
1st Floor		
Transite Fume Hood	130 SF	Rms. 117 and 128
Transite Lab Top	1,200 SF	Throughout First Floor
12"x12" Floor Tile and Associated Black Mastic	8000 SF	Throughout First Floor
2'x4' Lengthwise Fissure Ceiling Tile*	6250 SF	Throughout First Floor
Fire Door Insulation*	20 ea	Throughout First Floor
Carpet Mastic*	1760 SF	Throughout First Floor
Caulking Around Elevator*	25 LF	At Elevator Doors
White/Pinkish Sink Undercoating*	3 ea.	Room 117
Textured Paint on Concrete*	30 SF	Room 123
Wood Wall Panel Mastic*	100 SF	By Front Elevator
2nd Floor		
Transite Fume Hood*	80 SF	Rms. 207, 207A, 209
12"x12" Floor Tile and Associated Black Mastic*	8000 SF	Throughout Second Floor
2'x4' Lengthwise Fissure Ceiling Tile*	7450 SF	Throughout Second Floor
Fire Door Insulation*	20 ea	Throughout Second Floor
Carpet Mastic*	1845 SF	Throughout Second Floor
Black Sink Undercoating*	8 ea	Throughout Second Floor
Caulking Around Elevator*	25 LF	At Elevator Doors
Residual Floor Tile Mastic*	1500 SF	Throughout Second Floor excluding Halls and Bathrooms
3rd Floor		
Transite Fume Hood*	960 SF	Throughout Third Floor
Transite Lab Top*	3000 SF	Throughout Third Floor
Transite Fume Exhaust Pipe*	400 LF	Above Ceilings Third Floor
12"x12" Floor Tile and Associated Black Mastic*	8000 SF	Throughout Third Floor
2'x4' Lengthwise Fissure Ceiling Tile*	9150 SF	Throughout Third Floor
Fire Door Insulation*	20 ea	Throughout Third Floor
Carpet Mastic*	200 SF	Room 305 (over ACM Floor Tile and Mastic)
Caulking Around Elevator*	25 LF	At Elevator Doors
Green Linoleum Mastic*	200 SF	Cold Storage
4th Floor		
Transite Fume Exhaust Pipe*	400 LF	Above Ceilings Fourth Floor
Caulking Around Elevator*	25 LF	At Elevator Doors
Residual Floor Tile Mastic*	500	Throughout Fourth Floor excluding Halls and Bathrooms
Brown Caulk at Roof Deck*	250 LF	Throughout Fourth Floor
Textured Concrete*	1,500 SF	Throughout Fourth Floor
Basement		
Caulking Around Elevator*	25 LF	At Elevator Doors

Material	Quantity	Location
Black Paper / Mastic on Fiber Glass HVAC Insulation	4000 SF	Throughout Basement
Generator Exhaust Insulation*	350 LF	Throughout Basement and Chimney to Roof
Black and White 12"x12" Floor Tile and Associated Mastic*	20 SF	Basement Lavatory
Transite Paneling Associated With Elevator Equipment Panels*	200 SF	Elevator Equipment Rooms
Transite / Paper / Electrical Wiring Insulation In Electrical Switchboxes/Switchgear*	12 units	Throughout Basement
Exterior		
Transite Window Panels*	650 SF	Throughout Staircases
Red Duct Sealant	30 LF	Upper Roof

SF=Square Feet, LF=Linear Feet

CERC Building

Material	Quantity	Location
Basement		
Water Tank Insulation*	110 SF	At Steam Pipe Entry
Mudded Fitting on Fiberglass Pipe Insulation*	500 ea.	Throughout Building
Flex Connectors*	20 ea.	Throughout Building
12"x12" Beige Mottled Floor Tile	450 SF	Rooms 041, 041A
Black Sink Undercoat	2 ea.	Room 041A
1st Floor		
9"X9" Tan Floor Tile and Associated Black Mastic	4,500 SF	Rooms C149, C118A, C150, C151, C105, C104, C103, C102, C123A, C168, C162, C153, C154, C140, C141, C111, C137, C109, C135, C109, C133, C107, C107A, C130, C127, C106A, C105A, C104A, C125, C115, C122
9"x9" Grey Streak Floor Tile and Associated Black Mastic	2,500 SF	Rooms C116A, C116B, C146, C106, C151, C171, C155, C156, C157, C143
9"X9" Brown Floor Tile and Associated Mastic	1,700 SF	Rooms C101, C122A, C166, C167, C169, C165, C158A, C125A
9"X9" White Floor Tile and Associated Mastic	2,000 SF	Rooms C172, C173, C110, C108, C145A, C128, C128A, C126, C114
9"X9" Blue Streak Floor Tile and Associated Mastic	400 SF	Room C123
Residual Black Floor Tile Mastic	500 SF	Rooms C145, C121B, C120
Grey Window Glazing; White Window Frame Caulk	140 ea.	Throughout 1 st Floor
Pipe Fitting Insulation	4 ea	Room C154
Exterior		
Transite at Windows in Tunnel	400 SF	Connecting Corridor to Shriver Building
Base Flashing Roof Tars/ Felts*	40 SF	Roof and Connecting Corridor Roof to Shriver Building
Perimeter Flashing Tars / Felts*	120 SF	Roof and Connecting Corridor Roof to Shriver Building

SF=Square Feet, LF=Linear Feet

*From 2010 EFI Survey Report

TABLE 2
Regulated Materials – Universal Waste/OHM Inventory

SHRIVER BUILDING

Material Description	Material Location	Estimated Quantity
<i>Basement</i>		
Fluorescent Light Tubes	Throughout Basement	90 Tubes
Fluorescent Light Ballasts	Throughout Basement	45 Ballasts
Fire Extinguishers	Throughout Basement	5 Units
Hydraulic Doorstops	Throughout Basement	6 Units
Compressors	Throughout Basement	8 Units
Chiller Unit	Basement	1 Unit
Hydraulic Elevator Above-Ground Storage Tanks (Approx. 100 Gal. Each)	Throughout Basement	2 Units
275-Gallon Above-Ground Storage Tanks	Throughout Basement	2 Units
Car Batteries Associated With Emergency Generator	Basement	2 Units
Emergency Generator	Basement	1 Unit
Emergency Exit Signs/Lights/Strobes	Throughout Basement	5 Units
<i>1st Floor</i>		
Fluorescent Light Tubes	Throughout First Floor	600 Tubes
Fluorescent Light Ballasts	Throughout First Floor	300 Ballasts
Fire Extinguishers	Throughout First Floor	25 Units
Hydraulic Doorstops	Throughout First Floor	45 Units
Mercury Thermostats	Throughout First Floor	2 Units
Wall-Mounted Air Conditioning Unit	Throughout First Floor	2 Units
Compressed Gas Containers	Throughout First Floor	2 Units
Batteries	Throughout First Floor	2 Units
Air Conditioning Unit	Room 128	1 Unit
Emergency Exit Signs/Lights/Strobes	Throughout First Floor	20 Units
Smoke Detectors	Throughout First Floor	10 Units
Water Fountain	Throughout First Floor	2 Units

Material Description	Material Location	Estimated Quantity
<i>2nd Floor</i>		
Fluorescent Light Tubes	Throughout Second Floor	575 Tubes
Fluorescent Light Ballasts	Throughout Second Floor	290 Ballasts
Fire Extinguishers	Throughout Second Floor	20 Units
Hydraulic Doorstops	Throughout Second Floor	40 Units
Air Conditioning Unit	Throughout Second Floor	2 Units
Emergency Exit Signs/Lights/Strobes	Throughout Second Floor	15 Units
Smoke Detectors	Throughout Second Floor	10 Units
Water Fountain	Throughout Second Floor	2 Units
<i>3rd Floor</i>		
Fluorescent Light Tubes	Throughout Third Floor	700 Tubes
Fluorescent Light Ballasts	Throughout Third Floor	370 Ballasts
Fire Extinguishers	Throughout Third Floor	25 Units
Hydraulic Doorstops	Throughout Third Floor	25 Units
Air Conditioning Units/Refrigerators	Throughout Third Floor	4 Units
Emergency Exit Signs/Lights/Strobes	Throughout Third Floor	10 Units
Smoke Detectors	Throughout Third Floor	24 Units
Water Fountain	Throughout Third Floor	2 Units
Small Container Iodine Solution	Room 318	1 Unit
<i>4th Floor</i>		
Fluorescent Light Tubes	Throughout Fourth Floor	430 Tubes
Fluorescent Light Ballasts	Throughout Fourth Floor	200 Ballasts
Fire Extinguishers	Throughout Fourth Floor	10 Units
Hydraulic Doorstops	Throughout Fourth Floor	40 Units
Emergency Exit Signs/Lights/Strobes	Throughout Fourth Floor	20 Units
Smoke Detectors	Throughout Fourth Floor	10 Units

CERC BUILDING

Material Description	Material Location	Estimated Quantity
<i>Basement</i>		
Fluorescent Light Tubes	Throughout Basement	120 Tubes
Fluorescent Light Ballasts	Throughout Basement	60 Ballasts
Fire Extinguishers	Basement Hallway, Switchgear Room	10 Units
Batteries	Switchgear Room	25 Units
Electric Switchgear	Switchgear Room	5 Units
Smoke Detectors	Throughout Basement	5 Unit
Emergency Exit Signs/Lights/Strobes	Throughout Basement	5 Units
<i>1st Floor</i>		
Fluorescent Light Tubes	Throughout First Floor	700 Tubes
Fluorescent Light Ballasts	Throughout First Floor	350 Ballasts
Fire Extinguishers	Throughout First Floor	7 Units
Hydraulic Doorstops	Throughout First Floor	50 Units
Mercury Thermostats	Throughout First Floor	4 Units
Wall-Mounted Air Conditioning Unit	Throughout First Floor	35 Units
Emergency Exit Signs/Lights/Strobes	Throughout First Floor	45 Units
Refrigerators	Room C149B	1 Unit
Smoke Detectors	Throughout First Floor	20 Units

TABLE 3 - PCB SAMPLING RESULTS

Con-Test Analytical Laboratory	Client	EFI Global										
Analytical Testing Report	Attention	John Vaz										
Work Order: 1710449	Project Name	Fernald School - Shriver/CERC										
Report Date: 9/22/2017 2:16:49 PM	Project Number	98350-06362										
General Method	Analyte	Units										
LAB ID			1710449-01	1710449-02	1710449-03	1710449-04	1710449-05	1710449-06	1710449-07	1710449-08	1710449-09	1710449-10
CLIENT ID			PCB-001	PCB-002	PCB-003	PCB-004	PCB-005	PCB-006	PCB-007	PCB-008	PCB-009	PCB-010
DATE SAMPLED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17
DATE RECEIVED			12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17	12-Sep-17
MATRIX			Brown Door Caulk - Shriver	Brown Door Caulk - Shriver	Grey Window Caulk - Shriver	Grey Window Caulk - Shriver	Grey Door Caulk - CERC	Grey Door Caulk - CERC	White Window Glaze - CERC	White Window Glaze - CERC	Grey Window Caulk - CERC	Grey Window Caulk - CERC
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1016	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1221	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1232	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1242	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1248	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1254	mg/Kg	20000	4400	<1800	<480	730000	150000	16	120	160000	150000
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1260	mg/Kg	26000	4300	16000	9800	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1262	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	Aroclor-1268	mg/Kg	<5000	<2000	<1800	<480	<38000	<9800	<5.0	<48	<9700	<9700
		Total	46000	8700	16000	9800	730000	150000	16	120	160000	150000

ATTACHMENT C

ASBESTOS LABORATORY REPORT



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703487

Customer ID: EAF166

Customer PO:

Project ID:

Attention: John Vaz
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736

Fax: (978) 688-5494

Received Date: 08/07/2017 8:30 AM

Analysis Date: 08/09/2017

Collected Date: 08/04/2017

Project: 98350-06352 / Shreiver Bldg Roof - Fernald School, Waltham, MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001A <small>131703487-0001</small>	Upper Roof - Pink Fiberboard Over Styrofoam Board	White Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
001B <small>131703487-0002</small>	Lower Roof - Pink Fiberboard Over Styrofoam Board	White Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
002A <small>131703487-0003</small>	Upper Roof - Black Tar on Roof Deck	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
002B <small>131703487-0004</small>	Lower Roof - Black Tar on Roof Deck	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003A <small>131703487-0005</small>	Upper Roof - Black Tar on Roof Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B <small>131703487-0006</small>	Lower Roof - Black Tar on Roof Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004A <small>131703487-0007</small>	Upper Roof - White Penetration Sealant	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004B <small>131703487-0008</small>	Upper Roof - White Penetration Sealant	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005A <small>131703487-0009</small>	Upper Roof - Grey Seam Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005B <small>131703487-0010</small>	Upper Roof - Grey Seam Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006A <small>131703487-0011</small>	Upper Roof - Red Seam Sealant	Red Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
006B <small>131703487-0012</small>	Upper Roof - Red Seam Sealant				Positive Stop (Not Analyzed)
007A <small>131703487-0013</small>	Upper Roof - Black Stanchion Sealant	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007B <small>131703487-0014</small>	Upper Roof - Black Stanchion Sealant	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 15:32:33



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703487

Customer ID: EAF166

Customer PO:

Project ID:

Analyst(s)

Kevin Pine (13)

Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/09/2017 15:32:33

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
 www.efiglobal.com



BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name):	<u>John Vaz</u>	Bill To:	Accounts Payable
Company:	EFI Global, Inc.	Address:	Same
Address:	155 West Street	City, State, Zip:	Same
	Suite 6	Telephone:	800-659-1202
City, State, Zip:	Wilmington, MA 01887	Fax:	978-688-5494
Project Information			
Project No./ Description:	98350-06352	<u>Shriver Bldg Roof - Fernald School Waltham MA.</u>	
Email Report to:	<u>Lynda McDermott@efiglobal.com</u>		
Alternate:	<u>John - Vaz @ " "</u> <u>Sean - Cassidy C " "</u>		
Requested Turnaround Time:			
<input type="checkbox"/> RUSH	<input type="checkbox"/> 1 day	<input type="checkbox"/> 2 day	<input checked="" type="checkbox"/> 3 day
Media and Methodology			
Type of Analysis:	<u>ACM-PLM</u>	Check for Positive Stop:	<input checked="" type="checkbox"/>
Notes:	Analyze all plaster and joint compound samples	Date Collected:	<u>8/4/17</u>

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
001A,B	Pink Fiberboard over Styrofoam Board	Upper Roof, Lower Roof		
002A,B	Black Tar on Roof Deck	Upper Roof, Lower Roof		
003A,B	Black Tar on Roof Flashing	Upper Roof, Lower Roof		
004A,B	White Penetration Sealant	Upper Roof		
005A,B	Grey Seam Sealant	Upper Roof		
006A,B	Red Seam Sealant	Upper Roof		
007A,B	Black Stanchion Sealant	Upper Roof		

Total Number of Samples Submitted: _____

Samplers Name: John Vaz

Relinquished By (Client): _____

Received By (Lab): _____

Samplers Signature: _____

Date: _____ Time: _____

RECEIVED

AUG 07 2017

Date: _____ Time: _____

By: MM830



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703489

Customer ID: EAF166

Customer PO:

Project ID:

Attention: John Vaz
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736

Fax: (978) 688-5494

Received Date: 08/07/2017 8:30 AM

Analysis Date: 08/09/2017

Collected Date:

Project: 98350-06352 / CERC Interior - Fernald School, Waltham, MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001A <small>131703489-0001</small>	C140 - 9x9 Tan Floor Tile	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
001B <small>131703489-0002</small>	C149 - 9x9 Tan Floor Tile				Positive Stop (Not Analyzed)
002A <small>131703489-0003</small>	C140 - Mastic Assoc w/ 001A	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
002B <small>131703489-0004</small>	C149 - Mastic Assoc w/ 001B				Positive Stop (Not Analyzed)
003A <small>131703489-0005</small>	C141 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B <small>131703489-0006</small>	C147 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004A <small>131703489-0007</small>	C139 - Black Cove Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004B <small>131703489-0008</small>	C121 - Black Cove Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005A <small>131703489-0009</small>	C139 - White Cove Base Adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
005B <small>131703489-0010</small>	C121 - White Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006A <small>131703489-0011</small>	Hall A-1 - Wall Tile Grout	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006B <small>131703489-0012</small>	Hall A-4 - Wall Tile Grout	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007A <small>131703489-0013</small>	C139 - 2x4 Smooth Ceiling Tile	Tan/White Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
007B <small>131703489-0014</small>	C139 - 2x4 Smooth Ceiling Tile	Gray/White Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
008A <small>131703489-0015</small>	Hall A-1 - 2x4 Crow Ft Ceiling Tile	Gray/White Fibrous Homogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (Other)	None Detected
008B <small>131703489-0016</small>	Rm C123 - 2x4 Crow Ft Ceiling Tile	Gray/White Non-Fibrous Homogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 18:06:31



EMSL Analytical, Inc.

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<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703489
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
009A <small>131703489-0017</small>	Hall A-1 - Floor Tile Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009B <small>131703489-0018</small>	Hall A-4 - Floor Tile Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
010A <small>131703489-0019</small>	C110 - 9x9 White Streak Floor Tile	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
010B <small>131703489-0020</small>	C172 - 9x9 White Streak Floor Tile				Positive Stop (Not Analyzed)
011A <small>131703489-0021</small>	C110 - Mastic Assoc w/ 010A	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
011B <small>131703489-0022</small>	C172 - Mastic Assoc w/ 010B				Positive Stop (Not Analyzed)
012A <small>131703489-0023</small>	Room C145 - Sheetrock	Gray/Tan Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
012B <small>131703489-0024</small>	C149A - Sheetrock	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
013A <small>131703489-0025</small>	Room C145 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013B <small>131703489-0026</small>	C145A - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013C <small>131703489-0027</small>	C149A - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013D <small>131703489-0028</small>	C150A - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
014A <small>131703489-0029</small>	Room C145A - Grey Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
014B <small>131703489-0030</small>	Room C145A - Grey Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
015A <small>131703489-0031</small>	Room C145A - Yellow Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
015B <small>131703489-0032</small>	Room C145A - Yellow Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
016A <small>131703489-0033</small>	Hall A-3 - Grey Window Glazing	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
016B <small>131703489-0034</small>	Room C-156 - Grey Window Glazing				Positive Stop (Not Analyzed)
017A <small>131703489-0035</small>	Hall A-2 - Ceramic Wall Tile Adhesive	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 18:06:31



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EMSL Order: 131703489

Customer ID: EAF166

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
017B 131703489-0036	Hall A-3 - Ceramic Wall Tile Adhesive	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018A 131703489-0037	Hall A-1 - Ceramic Floor Tile Adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018B 131703489-0038	Hall A-3 - Ceramic Floor Tile Adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019A 131703489-0039	Room C128 - 2x2 Crow Feet Ceiling Tile	Gray/White Fibrous Homogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (Other)	None Detected
019B 131703489-0040	C128A - 2x2 Crow Feet Ceiling Tile	Gray/White Fibrous Homogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (Other)	None Detected
020A 131703489-0041	Room C128 - Wallboard Panel	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
020B 131703489-0042	C116A - Wallboard Panel	Gray/Tan Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
021A 131703489-0043	West Mens Room - 2x4 Smooth White Dotted Ceiling Tile	Gray Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
021B 131703489-0044	West Womens Rm - 2x4 Smooth White Dotted Ceiling Tile	Gray Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
022A 131703489-0045	C118 - 9x9 Grey Streak Floor Tile	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
022B 131703489-0046	C143 - 9x9 Grey Streak Floor Tile				Positive Stop (Not Analyzed)
023A 131703489-0047	C118 - Black Mastic Assoc w/ 022A	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
023B 131703489-0048	C143 - Black Mastic Assoc w/ 022B				Positive Stop (Not Analyzed)
024A 131703489-0049	Room C120 - Residual Black Mastic	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
024B 131703489-0050	Room C120 - Residual Black Mastic				Positive Stop (Not Analyzed)
025A 131703489-0051	Room 121A - 12x12 White Streak Floor Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
025B 131703489-0052	Room 121A - 12x12 White Streak Floor Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
026A 131703489-0053	Room 121A - Yellow Mastic Assoc w/ 025A	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
026B 131703489-0054	Room 121A - Yellow Mastic Assoc w/ 025B	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 18:06:31



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EMSL Order: 131703489
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
027A <small>131703489-0055</small>	Room 121A - Grey Leveler Beneath 025A	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
027B <small>131703489-0056</small>	Room 121A - Grey Leveler Beneath 025B	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
028A <small>131703489-0057</small>	Room C101 - 12x12 Black Floor Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
028B <small>131703489-0058</small>	Room C101 - 12x12 Black Floor Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
029A <small>131703489-0059</small>	Room C101 - Mastic Assoc w/ 028A	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
029B <small>131703489-0060</small>	Room C101 - Mastic Assoc w/ 028B	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
030A <small>131703489-0061</small>	Room C101 - 9x9 Brown Floor Tile	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
030B <small>131703489-0062</small>	C122A - 9x9 Brown Floor Tile				Positive Stop (Not Analyzed)
031A <small>131703489-0063</small>	Room C101 - Black Mastic Assoc w/ 030A	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
031B <small>131703489-0064</small>	C122A - Black Mastic Assoc w/ 030B				Positive Stop (Not Analyzed)
032A <small>131703489-0065</small>	Room C165 - Blue Sheet Flooring	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
032B <small>131703489-0066</small>	Room C165 - Blue Sheet Flooring	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
033A <small>131703489-0067</small>	Room C165 - White Adhesive Assoc w/ 032A	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
033B <small>131703489-0068</small>	Room C165 - White Adhesive Assoc w/ 032B	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
034A <small>131703489-0069</small>	Room C165 - White Sink Undercoat	White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
034B <small>131703489-0070</small>	Room C165 - White Sink Undercoat	White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
035A <small>131703489-0071</small>	Room C123 - 9x9 Blue Sheet Floor Tile	Blue Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
035B <small>131703489-0072</small>	Room C123 - 9x9 Blue Sheet Floor Tile				Positive Stop (Not Analyzed)
036A <small>131703489-0073</small>	Room C123 - Black Adhesive Assoc w/ 035A	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile

Initial report from: 08/09/2017 18:06:31



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

EMSL Order: 131703489

Customer ID: EAF166

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
036B <small>131703489-0074</small>	Room C123 - Black Adhesive Assoc w/ 035B				Positive Stop (Not Analyzed)
037A <small>131703489-0075</small>	Room C154 - Pipe Fitting Insulation	Gray Fibrous Homogeneous	15% Min. Wool	83% Non-fibrous (Other)	2% Chrysotile
037B <small>131703489-0076</small>	C003 - Pipe Fitting Insulation				Positive Stop (Not Analyzed)
037C <small>131703489-0077</small>	C041 - Pipe Fitting Insulation				Positive Stop (Not Analyzed)
038A <small>131703489-0078</small>	Room C125 - 2x4 Rough Finish Ceiling Tile	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (Other)	None Detected
038B <small>131703489-0079</small>	125A - 2x4 Rough Finish Ceiling Tile	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (Other)	None Detected
039A <small>131703489-0080</small>	Room C158 - 2x2 Rough Finish Ceiling Tile	Gray/White Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
039B <small>131703489-0081</small>	C158B - 2x2 Rough Finish Ceiling Tile	Gray/White Fibrous Homogeneous	15% Cellulose 60% Min. Wool	25% Non-fibrous (Other)	None Detected
040A <small>131703489-0082</small>	Room 125A - Beige Cove Base	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
040B <small>131703489-0083</small>	Room 125A - Beige Cove Base	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
041A <small>131703489-0084</small>	Room 125A - Beige Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
041B <small>131703489-0085</small>	Room 125A - Beige Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
042A <small>131703489-0086</small>	Hall A-5 - Brown Cove Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
042B <small>131703489-0087</small>	Hall A-5 - Brown Cove Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
043A <small>131703489-0088</small>	Hall A-5 - Off White Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
043B <small>131703489-0089</small>	Hall A-5 - Off White Cove Base Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013E <small>131703489-0090</small>	Hall A-5 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013F <small>131703489-0091</small>	Room C158 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
013G <small>131703489-0092</small>	Hall B-1 - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2017 18:06:31



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412


<http://www.EMSL.com/bostonlab@emsl.com>

EMSL Order: 131703489
Customer ID: EAF166
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
044A <i>131703489-0093</i>	Hall A-3 - Grey Window Frame Caulk	Gray Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
044B <i>131703489-0094</i>	Room C14C - Grey Window Frame Caulk				Positive Stop (Not Analyzed)
045A <i>131703489-0095</i>	Basement Landing - 12x12 Grey Dot Floor Tile	Gray Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
045B <i>131703489-0096</i>	Room C038 - 12x12 Grey Dot Floor Tile	Gray Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
046A <i>131703489-0097</i>	Basement Landing - Yellow Mastic Assoc w/ 045A	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
046B <i>131703489-0098</i>	Room C038 - Yellow Mastic Assoc w/ 045B	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
047A <i>131703489-0099</i>	C041A - Black Sink Undercoat	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
047B <i>131703489-0100</i>	C041A - Black Sink Undercoat				Positive Stop (Not Analyzed)
047A <i>131703489-0101</i>	C041 - 12x12 Beige Mottled Floor Tile	White Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
047B <i>131703489-0102</i>	C041A - 12x12 Beige Mottled Floor Tile				Positive Stop (Not Analyzed)
048A <i>131703489-0103</i>	C041 - White Mastic Assoc w/ 048A	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
048B <i>131703489-0104</i>	C041A - White Mastic Assoc w/ 048B	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) _____
Steve Grise (87)



Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/09/2017 18:06:31

131703489

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
 www.efiglobal.com



BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name): John Vaz	Bill To: Accounts Payable
Company: EFI Global, Inc.	Address: Same
Address: 155 West Street Suite 6	City, State, Zip: Same
City, State, Zip: Wilmington, MA 01887	Telephone: 800-659-1202
	Fax: 978-688-5494
Project Information	
Project No./ Description: 98350-06352	CERC Interior - Fernald School Waltham MA
Email Report to: Lynda McDermott@efiglobal.com	
Alternate: john-vaz@ " " " ben-rossidy e " "	
Requested Turnaround Time:	
<input type="checkbox"/> RUSH	<input type="checkbox"/> 1 day
<input type="checkbox"/> 2 day	<input checked="" type="checkbox"/> 3 day
<input type="checkbox"/> 5 day	
Media and Methodology	
Type of Analysis: ACM-PLM	Check for Positive Stop: <input checked="" type="checkbox"/>
Notes: Analyze all plaster and joint compound samples	Date Collected:

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
001A, B	9x9 Tan Floor Tile.	C140, C149		
002A, B	Mastic Assoc w/ 001A/B	C140, C149		
003A, B	Yellow Carpet Mastic.	C141, C147		
004A, B	Black Core Base	C139, C121		
005A, B	White Core Base Adhesive	C139, C121		
006A, B	Wall Tile Grout	Hall A-1, Hall AH		
007A, B	2x4 Smooth Ceiling Tile	C139		
008A, B	2x4 Crow Ft Ceiling Tile.	Hall A-1, Rm C123		
009A, B	Floor Tile Grout	Hall A-1, Hall A-4		
010A, B	9x9 White Struck Floor Tile.	C110, C172		
011A, B	Mastic Assoc w/ 010A/B	C110, C172		

Total Number of Samples Submitted: _____

Samplers Name: [Signature] ← 2
 Relinquished By (Client): [Signature]
 Received By (Lab): [Signature] WI

RECEIVED
 AUG 07 2017
 Date: _____
 By: [Signature]

Samplers Signature: John Vaz

Date: _____ Time: _____

Date: _____ Time: _____

1063

155 West Street, Suite 6
Wilmington, MA 01887
T: 978-688-3736
TF: 800-659-1202
F: 978-688-5494
www.efiglobal.com

EFI Global
Engineering, Fire &
Environmental Services

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
012A,B	Sheetrock	Room C145, C149A		
013A,B,C,D	Joint Compound	" " C145A, C149A, C50A		
014A,B	Grey Cove Base	Room C145A		
015A,B	Yellow Cove Base Adhesive	" "		
016A,B	Grey Window Clazing	Hall A-3, Room C-156		
017A,B	Ceramic Wall Tile Adhesive	Hall A-2, Hall A-3		
018A,B	Ceramic Floor Tile Adhesive	Hall A-1, Hall A-3		
019A,B	2x2 Crow Feet Ceiling Tile	Room 925, 928A		
020A,B	Wallboard Panel	Room C128, C116A		
021A,B	2x4 Smooth White Dotted Ceiling Tile	West Mens Room, West Womens Rm.		
022A,B	9x9 Grey Struck Floor Tile	C118, C143		
023A,B	Black Mastic Assoc w/022A,B	" "		
024A,B	Residual Black Mastic	Room C125		
025A,B	12x12 White Struck Floor Tile	Room 121A		
026A,B	Yellow mastic Assoc w/025A,B	" "		
027A,B	Grey Lender beneath 025A,B	" "		
028A,B	12x12 Black Floor Tile	Room C101		
029A,B	Mastic Assoc w/ 028A,B	" " C122A		
030A,B	9x9 Brown Floor Tile	" " C122A		
031A,B	Black Mastic Assoc w/030A,B	" " C122A		
032A,B	Blue Sheet Flooring	Room C165		
033A,B	White Adhesive Assoc w/032A,B	" "		
034A,B	White Sink Undercoat	" "		
035A,B	9x9 Blue Struck Floor Tile	Room C123		
036A,B	Black Adhesive Assoc w/035A,B	" "		
037A,B,C	Pipe Fitting Insulation	Rooms C154, C033, C041		

Project Number/Description 58350-06352 CERC Interior

RECEIVED
AUG 07 2017
By MM 830

Page 2 of 3



EMSL Analytical, Inc.

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com> / bostonlab@emsl.com

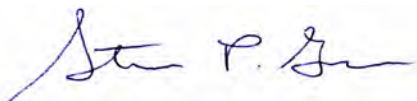
EMSL Order: 131703818
Customer ID: EAF166
Customer PO:
Project ID:

Attention: John Vaz EFI Global, Inc. 155 West Street, Suite 6 Wilmington, MA 01887	Phone: (978) 688-3736 Fax: (978) 688-5494 Received Date: 08/24/2017 8:54 AM Analysis Date: 08/25/2017 Collected Date: 08/23/2017
Project: 98350-06352 / Shriver/CERC	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
101A <small>131703818-0001</small>	CERC-Exterior - Paper Behind Metal Clading Under Windows	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
101B <small>131703818-0002</small>	CERC-Exterior - Paper Behind Metal Clading Under Windows	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected

Analyst(s)
Michael Mink (2)


Steve Grise, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 08/25/2017 07:46:41



AEC

Laboratories, LLC

MA License: AA000197

RI License: AAL-112A1

CT License: PH-0124

March 30, 2010

Client Name and Address:

EFI Global, Inc.

Ten New England Business Center, Ste.105

Andover, MA 01810

Re: Bulk Asbestos Results from CERC Bldg. DCAM

200 Trapelo Rd.; Waltham, MA

Client Project Number: 98350-02344

AEC Laboratory Number: **01057.00**

Dear Craig Miner,

We at AEC Laboratories, LLC would like to thank you for your recent business. 28 sample(s) were received on 03/26/2010 from a job located at 200 Trapelo Rd.; Waltham, MA for 48 Hour Turn Around Time. The final report is enclosed for the aforementioned sample(s).

Please note that this report conforms to all applicable State and Federal requirements. AEC Laboratories, LLC follows prescribed procedures for the analysis of bulk materials to identify and quantify asbestos type and content.

These results only pertain to this job and should not be used in the interpretation of any other job. This report may be reproduced only in its entirety.

If you have any questions please do not hesitate to call me at the number below.

A handwritten signature in black ink, appearing to read "Steven Grevelis".

Steven Grevelis

Laboratory Manager

Enclosures:

- Analytical results
- Chain of Custody



Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: CERC Bldg. DCAM
200 Trapelo Rd.; Waltham, MA

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

<i>Client</i>		Analysis by EPA Method 600/R-93/116							
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>%</i>	<i>Other Materials</i>	<i>%</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
001A	01057-01	Basement	Off-White, Homogenous, Tank Insulation	Chrysotile Amosite	18 7	Nonfibrous	75	Yes	25
001B	01057-02	Basement	Tank Insulation						PS
001C	01057-03	Basement	Tank Insulation						PS
002A	01057-04	Basement	Off-White, Homogenous, White Mud on Fiberglass Caps			Cellulose Nonfibrous	1 99	No	NAD
002B	01057-05	Basement	Off-White, Homogenous, White Mud on Fiberglass Caps			Cellulose Nonfibrous	1 99	No	NAD

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.



Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: CERC Bldg. DCAM

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
002C	01057-06	Basement	Off-White, Homogenous, White Mud on Fiberglass Caps			Cellulose Nonfibrous	1 99	No	NAD
003A	01057-07	Basement	Grey, Homogenous, Large Mudded Fitting on Fiberglass P.I.	Chrysotile	4	Fibrous Glass Nonfibrous	36 60	Yes	4
003B	01057-08	Basement	Large Mudded Fitting on Fiberglass P.I.						PS
003C	01057-09	Basement	Large Mudded Fitting on Fiberglass P.I.						PS
004A	01057-10	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Speck Ceiling Tile			Cellulose Fibrous Glass Nonfibrous	35 35 30	No	NAD

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.



810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

Re: CERC Bldg. DCAM
 200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
004B	01057-11	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Speck Ceiling Tile		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
005A	01057-12	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Fissured Ceiling Tile		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
005B	01057-13	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Fissured Ceiling Tile		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
006A	01057-14	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Textured Ceiling Tile		Cellulose Fibrous Glass Nonfibrous	<1 70 30	No NAD	
006B	01057-15	Basement	Off-White/Grey, Heterogeneous, 2'x4' White Textured Ceiling Tile		Cellulose Fibrous Glass Nonfibrous	<1 70 30	No NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

Re: CERC Bldg. DCAM

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
007A	01057-16	Basement	Silver, Homogenous, Silver Duct Sealant		Nonfibrous	100	No NAD	
007B	01057-17	Basement	Silver, Homogenous, Silver Duct Sealant		Nonfibrous	100	No NAD	
008A	01057-18	Basement	Grey, Homogenous, Medium Mudded Fittings on Fiberglass P.I.		Fibrous Glass Nonfibrous	35 65	No NAD	
008B	01057-19	Basement	Grey, Homogenous, Medium Mudded Fittings on Fiberglass P.I.		Fibrous Glass Nonfibrous	35 65	No NAD	
008C	01057-20	Basement	Grey, Homogenous, Medium Mudded Fittings on Fiberglass P.I.		Fibrous Glass Nonfibrous	35 65	No NAD	

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.



Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

Re: CERC Bldg. DCAM

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
009A	01057-21	Exterior	Black, Homogenous, Black Caulking on Roof Vents		Nonfibrous	100	No NAD	
009B	01057-22	Exterior	Black, Homogenous, Black Caulking on Roof Vents		Nonfibrous	100	No NAD	
010A	01057-23	Exterior	Black, Heterogeneous, Built-Up Roofing Tars/Felts		Cellulose Nonfibrous	30 70	No NAD	
010B	01057-24	Exterior	Black, Heterogeneous, Built-Up Roofing Tars/Felts		Cellulose Nonfibrous	30 70	No NAD	
011A	01057-25	Exterior	Black, Heterogeneous, Perimeter Flashing Tars/Felts		Cellulose Nonfibrous	30 70	No NAD	

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.



Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01057.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: Not Provided
Date Received: 3/26/2010
Date Analyzed: 3/30/2010
Date Reported: 3/30/2010

Re: CERC Bldg. DCAM

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
011B	01057-26	Exterior	Black, Heterogeneous, Perimeter Flashing Tars/Felts		Cellulose Nonfibrous	No	NAD	
012A	01057-27	Exterior	Off-White, Homogenous, Gypsum Roof Deck		Cellulose Nonfibrous	No	NAD	
012B	01057-28	Exterior	Off-White, Homogenous, Gypsum Roof Deck		Cellulose Nonfibrous	No	NAD	

Reviewed by: Steven Grevelis

Analyzed by: Steven Grevelis

Signature:

Signature:

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.

AEC# 00057

BULK SAMPLE CHAIN OF CUSTODY FORM

Your Name: C. Miner	Bill to: Same
Company: EFI	Address:
Address: Ten New England Business Center, Suite 105	City/State: Zip:
City/State: Andover, Massachusetts Zip: 01810	PO #:

Project Information

Project #/Name: 98350-02344 200 Trapelo Rd. Waltham, MA DCAM **CERC Bldg**
 Results To: Craig_miner@efiglobal.com Tel: (978) 688-3736
 Alternate: Fax: (978) 688-5954

Requested Turnaround Time

RUSH 1 Day **2 Day** 3 Day 5 Day
 Stop at first positive Y or N

Media and Methodology

PLM - BULK EPA 600/R-93/116 Point Count Gravimetric

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY	
001A,B,C		Tank Insulation	Basement	1 23	
002A,B,C		White Mud on Fiberglass Caps	↓	456	
003A,B,C		Large Mudded Fitting on Fiberglass P.I.		789	
004A,B		2'x4' White Speech Ceiling Tile		10 11	
005A,B		2'x4' White Fissured Ceiling Tile		12 13	
006A,B		2'x4' White Textured Ceiling Tile		14 15	
007A,B		Silver Duct Sealant		16 17	
008A,B,C		Medium Mudded Fittings on Fiberglass P.I.		18 19 20	
009A,B		Black Caulking on Roof Vents		Exterior	21 22
010A,B		Built-up Roofing Tars/Felts		↓	23 24

Total Number of Samples Submitted:

Signatures

Relinquished By: <i>Sean Cassin</i>	Date: 3/25/10	Time: 1700
Received By: <i>[Signature]</i>	Date: 3/26/10	Time:
Relinquished By:	Date:	Time:
Received By:	Date:	Time:

011 Perin
012 Gypsum



AEC

Laboratories, LLC

MA License: AA000197

RI License: AAL-112A1

CT License: PH-0124

March 30, 2010

Client Name and Address:

EFI Global, Inc.

Ten New England Business Center, Ste.105

Andover, MA 01810

Re: Bulk Asbestos Results from Shriner Bldg.

200 Trapelo Rd.; Waltham, MA

Client Project Number: 98350-02344

AEC Laboratory Number: **01059.00**

Dear Craig Miner,

We at AEC Laboratories, LLC would like to thank you for your recent business. 198 sample(s) were received on 03/29/2010 from a job located at 200 Trapelo Rd.; Waltham, MA for 5 Day Turn Around Time. The final report is enclosed for the aforementioned sample(s).

Please note that this report conforms to all applicable State and Federal requirements. AEC Laboratories, LLC follows prescribed procedures for the analysis of bulk materials to identify and quantify asbestos type and content.

These results only pertain to this job and should not be used in the interpretation of any other job. This report may be reproduced only in its entirety.

If you have any questions please do not hesitate to call me at the number below.

A handwritten signature in black ink, appearing to read "Steven Grevelis".

Steven Grevelis

Laboratory Manager

Enclosures:

- Analytical results
- Chain of Custody



810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
001A	01059-01	4th Flr	Off-White/Brown, Heterogeneous, 2'x4' Ceiling Tile, Sheetrock Type		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
001B	01059-02	4th Flr	Off-White/Brown, Heterogeneous, 2'x4' Ceiling Tile, Sheetrock Type		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
002A	01059-03	4th Flr	Off-White/Brown, Heterogeneous, Sheetrock		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
002B	01059-04	4th Flr	Off-White/Brown, Heterogeneous, Sheetrock		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
003A	01059-05	4th Flr	Off-White, Homogenous, Joint Compound		Nonfibrous	100	No NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
003B	01059-06	4th Flr	Off-White, Homogenous, Joint Compound		Nonfibrous	100	No NAD	
003C	01059-07	4th Flr	Off-White, Homogenous, Joint Compound		Nonfibrous	100	No NAD	
004A	01059-08	4th Flr	Off-White, Heterogeneous, Joint Tape		Fibrous Glass Nonfibrous	75 25	No NAD	
004B	01059-09	4th Flr	Off-White, Heterogeneous, Joint Tape		Fibrous Glass Nonfibrous	75 25	No NAD	
005A	01059-10	Between Concrete + CMU Block on Perimeter Walls 4th Flr.	Off-White, Homogenous, Seam Caulk		Nonfibrous	100	No NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
005B	01059-11	Between Concrete + CMU Block on Perimeter Walls 4th Flr.	Off-White/Grey, Heterogeneous, Seam Caulk			Nonfibrous	100	No	NAD
006A	01059-12	3rd Flr	Off-White, Homogenous, Transite Fume Hood	Chrysotile	18	Nonfibrous	82	Yes	18
007A	01059-13	3rd Flr	Black, Homogenous, Transite Lab Top	Chrysotile	10	Nonfibrous	90	Yes	10
008A	01059-14	3rd Flr	Grey, Homogenous, Transite Fume Exhaust Pipe	Chrysotile	18	Nonfibrous	82	Yes	18
009A	01059-15	3rd Flr	Off-White/Tan, Heterogeneous, White 12"x12" w/Black Streaks Floor Tile	Chrysotile	4	Nonfibrous	96	Yes	4

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>%</i>	<i>Other Materials</i>	<i>%</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
009B	01059-16	3rd Flr	White 12"x12" w/Black Streaks Floor Tile						PS
010A	01059-17	3rd Flr	Black, Homogenous, White 12"x12" w/Black Streaks Floor Tile Mastic	Chrysotile	12	Nonfibrous	88	Yes	12
010B	01059-18	3rd Flr	White 12"x12" w/Black Streaks Floor Tile Mastic						PS
011A	01059-19	3rd Flr Hall	Multi-Colored, Homogenous, Tan Epoxy Floor			Nonfibrous	100	No	NAD
011B	01059-20	3rd Flr Hall	Multi-Colored, Homogenous, Tan Epoxy Floor			Nonfibrous	100	No	NAD

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116								
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %	
012A	01059-21	3rd Flr	Grey, Heterogeneous, 2'x4' Lengthwise Fissure Ceiling Tile	Amosite	2	Cellulose Fibrous Glass Nonfibrous	3 60 35	Yes	2	
012B	01059-22	3rd Flr	2'x4' Lengthwise Fissure Ceiling Tile						PS	
013A	01059-23	3rd Flr Stairs	Off-White, Homogenous, Fire Door Insulation	Amosite Chrysotile	13 7	Nonfibrous	80	Yes	20	
013B	01059-24	3rd Flr Stairs	Fire Door Insulation						PS	
014A	01059-25	3rd Flr	Black, Homogenous, Black 4" Covebase			Nonfibrous	100	No	NAD	

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
014B	01059-26	3rd Flr	Black, Homogenous, Black 4" Covebase		Nonfibrous	100	No NAD	
015A	01059-27	3rd Flr	Brown, Homogenous, Black 4" Covebase Mastic		Fibrous Talc Nonfibrous	2 98	No NAD	
015B	01059-28	3rd Flr	Brown, Homogenous, Black 4" Covebase Mastic		Fibrous Talc Nonfibrous	2 98	No NAD	
016A	01059-29	3rd Flr	Grey, Homogenous, Small Diameter Pipe on Fiberglass		Fibrous Glass Nonfibrous	35 65	No NAD	
016B	01059-30	3rd Flr	Grey, Homogenous, Small Diameter Pipe on Fiberglass		Fibrous Glass Nonfibrous	35 65	No NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
016C	01059-31	3rd Flr	Grey, Homogenous, Small Diameter Pipe on Fiberglass		Fibrous Glass Nonfibrous	35 65	No NAD	
017A	01059-32	3rd Flr	Med. Dia. Pipe Fitting on Fiberglass				NA	
Comments: Sample not submitted.								
017B	01059-33	2nd Flr. Rm.209	Grey, Homogenous, Med. Dia. Pipe Fitting on Fiberglass		Fibrous Glass Nonfibrous	35 65	No NAD	
017C	01059-34	2nd Flr. Rm. 209	Grey, Homogenous, Med. Dia. Pipe Fitting on Fiberglass		Fibrous Glass Nonfibrous	35 65	No NAD	
018A	01059-35	3rd Flr. Under Concrete Epoxy + Epoxy Floors	Black/Off-White, Heterogeneous, Black Vapor Barrier/ Flooring		Nonfibrous	100	No NAD	

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

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 Ten New England Business Center, Ste.105
 Andover, MA 01810

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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
018B	01059-36	3rd Flr. Under Concrete Epoxy + Epoxy Floors	Black, Homogenous, Black Vapor Barrier/ Flooring		Nonfibrous	No	NAD	
019A	01059-37	3rd Flr.	Grey, Homogenous, Interior Window Caulk		Nonfibrous	No	NAD	
019B	01059-38	3rd Flr.	Grey, Homogenous, Interior Window Caulk		Nonfibrous	No	NAD	
020A	01059-39	Stairwell 3rd Flr.	Off-White, Homogenous, Skimcoat on Concrete		Nonfibrous	No	NAD	
020B	01059-40	Stairwell 2nd Flr.	Off-White, Homogenous, Skimcoat on Concrete		Nonfibrous	No	NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
020C	01059-41	Stairwell 1st Floor	Off-White, Homogenous, Skimcoat on Concrete			Nonfibrous	100	No	NAD
020D	01059-42	Stairwell 3rd Floor	Off-White, Homogenous, Skimcoat on Concrete			Nonfibrous	100	No	NAD
020E	01059-43	Stairwell 4th Floor	Off-White, Homogenous, Skimcoat on Concrete			Nonfibrous	100	No	NAD
021A	01059-44	Rm. 304	Tan, Homogenous, Brown with Beige 12"X12" Floor Tile	Chrysotile	8	Nonfibrous	92	Yes	8
021B	01059-45	Rm. 304	Brown with Beige 12"X12" Floor Tile						PS

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

Re: Shriner Bldg.

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116							
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>%</i>	<i>Other Materials</i>	<i>%</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
022A	01059-46	Rm. 304	Black/Brown, Heterogeneous, Brown with Beige 12"X12" Floor Tile Mastic	Chrysotile	4	Nonfibrous	96	Yes	4
022B	01059-47	Rm. 304	Brown with Beige 12"X12" Floor Tile Mastic						PS
023A	01059-48	3rd Floor- Rm 316	Off-White/Brown, Heterogeneous, Sheetrock			Cellulose Nonfibrous	10 90	No	NAD
023B	01059-49	3rd Floor- Rm 316	Off-White/Brown, Heterogeneous, Sheetrock			Cellulose Nonfibrous	10 90	No	NAD
024A	01059-50	3rd Floor- Rm 316	Off-White, Homogenous, Joint Compound			Nonfibrous	100	No	NAD

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<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
024B	01059-51	3rd Floor- Rm 316	Off-White, Homogenous, Joint Compound		Nonfibrous	100	No NAD	
024C	01059-52	3rd Floor- Rm 316	Off-White, Homogenous, Joint Compound		Nonfibrous	100	No NAD	
025A	01059-53	3rd Floor- Rm 316	Off-White, Heterogeneous, Joint Tape		Fibrous Glass Nonfibrous	85 15	No NAD	
025B	01059-54	3rd Floor- Rm 316	Off-White, Heterogeneous, Joint Tape		Fibrous Glass Nonfibrous	85 15	No NAD	
026A	01059-55	Stairwell 3rd Floor	Grey, Homogenous, Gray Sealant on Metal Fume Hood Exhaust		Nonfibrous	100	No NAD	

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

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 Andover, MA 01810

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
026B	01059-56	4th Floor	Grey, Homogenous, Gray Sealant on Metal Fume Hood Exhaust		Nonfibrous	100	No NAD
027A	01059-57	3rd Floor Men's Rm.	Off-White, Homogenous, Ceramic Wall Tile Grout		Nonfibrous	100	No NAD
027B	01059-58	Ceramic Wall Tile Grout	Off-White, Homogenous, 3rd Flr. Men's Rm.		Nonfibrous	100	No NAD
028A	01059-59	Ceramic Floor Tile Grout	Grey, Homogenous, 3rd Flr. Men's Rm.		Nonfibrous	100	No NAD
028B	01059-60	Ceramic Floor Tile Grout	Grey, Homogenous, 3rd Flr. Men's Rm.		Nonfibrous	100	No NAD

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
029A	01059-61	Glue Around Metal Under Panels	Black, Homogenous, 4th Flr. Men's Rm.		Nonfibrous	No	NAD
029B	01059-62	Glue Around Metal Under Panels	Black, Homogenous, 4th Flr. Men's Rm.		Nonfibrous	No	NAD
030A	01059-63	Plaster Skim Coat	Off-White, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD
030B	01059-64	Plaster Skim Coat	Off-White, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD
030C	01059-65	Plaster Skim Coat	Off-White, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD

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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
031A	01059-66	Plaster Base Coat	Grey, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD	
031B	01059-67	Plaster Base Coat	Grey, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD	
031C	01059-68	Plaster Base Coat	Grey, Homogenous, 3rd Flr. Rm 314		Nonfibrous	No	NAD	
032A	01059-69	Blue/ Gray Sheet Flooring	Multi-Colored, Heterogeneous, 2nd Floor Hall		Cellulose Synthetics Wollastonite Nonfibrous	No	NAD	
032B	01059-70	Blue/ Gray Sheet Flooring	Multi-Colored, Heterogeneous, 2nd Floor Hall		Cellulose Synthetics Wollastonite Nonfibrous	No	NAD	

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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
033A	01059-71	2' X 4' Fissure Ceiling Tile	Off-White/Grey, Heterogeneous, 2nd Flr. Rm 215		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
033B	01059-72	2' X 4' Fissure Ceiling Tile	Off-White/Grey, Heterogeneous, 2nd Flr. Rm 215		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
034A	01059-73	2' X 4' Cratered Ceiling Tile	Off-White/Grey, Heterogeneous, 2nd Flr. Rm 223		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
034B	01059-74	2' X 4' Cratered Ceiling Tile	Off-White/Grey, Heterogeneous, 2nd Flr. Rm 223 Hall		Cellulose Fibrous Glass Nonfibrous	35 35 30	No NAD	
035A	01059-75	Gray Cove Base Mastic	Tan, Homogenous, Rm 223		Nonfibrous	100	No NAD	

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

Client Sample/HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
035B	01059-76	Gray Cove Base Mastic	Tan, Homogenous, Rm 223			Nonfibrous	100	No	NAD
036A	01059-77	Carpet Mastic	Black/Tan, Heterogeneous, Rm 223	Chrysotile	5	Nonfibrous	95	Yes	5
036B	01059-78	Carpet Mastic	Rm 223						PS
037A	01059-79	White w/ Tan 12"X12" Floor Tile	Off-White, Homogenous, Rm 224			Nonfibrous	100	No	NAD
037B	01059-80	White w/ Tan 12"X12" Floor Tile	Off-White, Homogenous, Rm 224			Nonfibrous	100	No	NAD

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<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Asbestos %</i>	<i>Other Materials</i>	<i>Other %</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
038A	01059-81	White w/ Tan 12"X12" Floor Tile Mastic	Yellow/Black, Heterogeneous, Rm 224	Chrysotile	10	Nonfibrous	90	Yes	10
038B	01059-82	White w/ Tan 12"X12" Floor Tile Mastic	Rm 224						PS
040A	01059-83	Faux Marble Floor Tile	Off-White/Blue, Heterogeneous, Rm 214			Nonfibrous	100	No	NAD
040B	01059-84	Faux Marble Floor Tile	Off-White/Blue, Heterogeneous, Rm 214			Nonfibrous	100	No	NAD
041A	01059-85	Faux Marble Floor Tile Mastic	Clear, Homogenous, Rm 214			Nonfibrous	100	No	NAD

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<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
041B	01059-86	Faux Marble Floor Tile Mastic	Clear, Homogenous, Rm 214		Nonfibrous	100	No NAD	
042A	01059-87	Black Sink Under Coating	Black, Homogenous, 2nd Floor Kitchen	Chrysotile	4 Nonfibrous	96	Yes 4	
042B	01059-88	Black Sink Under Coating	2nd Floor Kitchen				PS	
043A	01059-89	Gray Cove Base	Grey, Homogenous, Rm. 223		Nonfibrous	100	No NAD	
043B	01059-90	Gray Cove Base	Grey, Homogenous, Rm. 223		Nonfibrous	100	No NAD	

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200 Trapelo Rd.; Waltham, MA

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044A	01059-91	Sheetrock	Off-White, Homogenous, Rm 224		Cellulose Nonfibrous	10 90	No	NAD
044B	01059-92	Sheetrock	Off-White, Homogenous, Rm 224		Cellulose Nonfibrous	10 90	No	NAD
045A	01059-93	Joint Compound	Off-White, Homogenous, Rm 224		Nonfibrous	100	No	NAD
045B	01059-94	Joint Compound	Off-White, Homogenous, Rm 224		Nonfibrous	100	No	NAD
045C	01059-95	Joint Compound	Off-White, Homogenous, Rm 224		Nonfibrous	100	No	NAD

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046A	01059-96	Joint Tape	Off-White/Brown, Heterogeneous, Rm 224		Cellulose Nonfibrous	45 55	No NAD	
046B	01059-97	Joint Tape	Off-White/Brown, Heterogeneous, Rm 224		Cellulose Nonfibrous	45 55	No NAD	
047A	01059-98	Red Sealant on Electrical Conduct	Red, Homogenous, Hallway - 2nd Floor		Fibrous Glass Nonfibrous	3 97	No NAD	
047B	01059-99	Red Sealant on Electrical Conduct	Red, Homogenous, Hallway - 2nd Floor		Fibrous Glass Nonfibrous	3 97	No NAD	
048A	01059-100	12" X 12" Gray + Black Floor Tile	Grey, Heterogeneous, Room 207		Nonfibrous	100	No NAD	

Comments: TEM analysis recommended.

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200 Trapelo Rd.; Waltham, MA

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<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
048B	01059-101	12" X 12" Gray + Black Floor Tile	Grey, Heterogeneous, Room 207		Nonfibrous	100	No NAD	
Comments: TEM analysis recommended.								
049A	01059-102	Associated Brown Mastic	Brown, Homogenous, Room 207		Nonfibrous	100	No NAD	
049B	01059-103	Associated Brown Mastic	Brown, Homogenous, Room 207		Nonfibrous	100	No NAD	
050A	01059-104	12" X 12" White w/ Gray Speck Floor Tile	Off-White, Homogenous, Room 202		Nonfibrous	100	No NAD	
050B	01059-105	12" X 12" White w/ Gray Speck Floor Tile	Off-White, Homogenous, Room 202		Nonfibrous	100	No NAD	

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
051A	01059-106	Associated Yellow Mastic	Yellow, Homogenous, Room 202		Nonfibrous	100	No NAD	
051B	01059-107	Associated Yellow Mastic	Yellow, Homogenous, Room 202		Nonfibrous	100	No NAD	
052A	01059-108	Sliver Door Caulking	Silver, Homogenous, Hallway - 2nd Floor		Nonfibrous	100	No NAD	
052B	01059-109	Silver Door Caulking	Silver, Homogenous, Hallway - 2nd Floor		Nonfibrous	100	No NAD	
053A	01059-110	Caulking Around Elevator	Grey, Homogenous, Hallway - 2nd Floor	Chrysotile	5 Nonfibrous	95	Yes 5	

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<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
053B	01059-111	Caulking Around Elevator	Hallway - 2nd Floor				PS
054A	01059-112	Gray HVAC Seam Sealant	Grey, Homogenous, Rm . 209		Nonfibrous	No	100 NAD
054B	01059-113	Gray HVAC Seam Sealant	Grey, Homogenous, Rm . 209		Nonfibrous	No	100 NAD
055A	01059-114	12" X 12" White w/ Brown Streak Floor Tile	Brown, Homogenous, Room 206	Chrysotile	3 Nonfibrous	Yes	97 3
055B	01059-115	12" X 12" White w/ Brown Streak Floor Tile	Room 206				PS

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
056A	01059-116	12" X 12" White w/ Brown Streak Floor Tile - Associated Brown Mastic	Brown, Homogenous, Room 206		Nonfibrous	100	No NAD
056B	01059-117	12" X 12" White w/ Brown Streak Floor Tile - Associated Brown Mastic	Brown, Homogenous, Room 206		Nonfibrous	100	No NAD
057A	01059-118	Grey w/ Streaks 12 X 12 Floor Tile	Grey, Homogenous, Hallway - 1st Floor		Nonfibrous	100	No NAD
057B	01059-119	Grey w/ Streaks 12 X 12 Floor Tile	Grey, Homogenous, Hallway - 1st Floor		Nonfibrous	100	No NAD
058A	01059-120	Grey w/ Streaks 12 X 12 Floor Tile Mastic	Off-White, Homogenous, Hallway - 1st Floor		Nonfibrous	100	No NAD

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<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
058B	01059-121	Grey w/ Streaks 12 X 12 Floor Tile Mastic	Off-White, Homogenous, Hallway - 1st Floor		Nonfibrous	No	NAD
059A	01059-122	Sheetrock	Off-White/Brown, Heterogeneous, 1st Flr.		Cellulose Nonfibrous	No	NAD
059B	01059-123	Sheetrock	Off-White/Brown, Heterogeneous, 1st Flr.		Cellulose Nonfibrous	No	NAD
060A	01059-124	Joint Compound	Off-White, Homogenous, 1st Flr.		Nonfibrous	No	NAD
060B	01059-125	Joint Compound	Off-White, Homogenous, 1st Flr.		Nonfibrous	No	NAD

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Asbestos %</i>	<i>Other Materials</i>	<i>Asbestos %</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
060C	01059-126	Joint Compound	Off-White, Homogenous, 1st Flr.			Nonfibrous	100	No	NAD
061A	01059-127	Joint Tape	Off-White, Heterogeneous, 1st Flr.			Fibrous Glass Nonfibrous	85 15	No	NAD
061B	01059-128	Joint Tape	Off-White, Heterogeneous, 1st Flr.			Fibrous Glass Nonfibrous	85 15	No	NAD
062A	01059-129	Pink Sink Undercoating	Pink, Homogenous, Rm 117	Chrysotile	8	Nonfibrous	92	Yes	8
062B	01059-130	Pink Sink Undercoating	Rm 117						PS

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<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
063A	01059-131		Black, Homogenous, Lab Top		Nonfibrous	100	No NAD	
063B	01059-132		Black, Homogenous, Lab Top		Nonfibrous	100	No NAD	
064A	01059-133	6" Gray Cove Base	Grey, Homogenous, Hallway - 1st Floor		Nonfibrous	100	No NAD	
064B	01059-134	6" Gray Cove Base	Grey, Homogenous, Hallway - 1st Floor		Nonfibrous	100	No NAD	
065A	01059-135	Yellow + Brown Mastic	Yellow/Brown, Heterogeneous, Hallway - 1st Floor		Fibrous Talc Nonfibrous	<1 100	No NAD	

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<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Asbestos %</i>	<i>Other Materials</i>	<i>Asbestos %</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
065B	01059-136	Yellow + Brown Mastic	Yellow/Brown, Heterogeneous, Hallway - 1st Floor			Fibrous Talc Nonfibrous	<1 100	No	NAD
066A	01059-137	Black Terrazzo Flooring	Black, Homogenous, Rm . 123			Nonfibrous	100	No	NAD
066B	01059-138	Black Terrazzo Flooring	Black, Homogenous, Rm . 123			Nonfibrous	100	No	NAD
067A	01059-139	Reddish Skim on Floor	Red, Homogenous, Rm . 123			Nonfibrous	100	No	NAD
067B	01059-140	Reddish Skim on Floor	Red, Homogenous, Rm . 123			Nonfibrous	100	No	NAD

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Client Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Asbestos %	Other Materials	Other %	Asbestos Present	Total Asbestos %
068A	01059-141	White Stone Pattern Linoleum	Off-White/Grey, Heterogeneous, Rm. 117			Cellulose Synthetics Wollastonite Nonfibrous	20 3 2 75	No	NAD
068B	01059-142	White Stone Pattern Linoleum	Off-White/Grey, Heterogeneous, Rm. 117			Cellulose Synthetics Wollastonite Nonfibrous	20 3 2 75	No	NAD
069A	01059-143		Tan/Grey, Heterogeneous, Texted Paint on Concrete	Chrysotile	2	Nonfibrous	98	Yes	2
069B	01059-144		Texted Paint on Concrete						PS
069C	01059-145		Texted Paint on Concrete						PS

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Analysis by EPA Method 600/R-93/116									
Client Sample/HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Asbestos %	Other Materials	Other %	Asbestos Present	Total Asbestos %
070A	01059-146	Beige w/ Brown 12" X 12" Floor Tile	Beige, Homogenous, 1st Flr. Rm. 114	Chrysotile	3	Nonfibrous	97	Yes	3
070B	01059-147	Beige w/ Brown 12" X 12" Floor Tile	1st Flr. Rm. 114						PS
071A	01059-148	Beige w/ Brown 12" X 12" Floor Tile Mastic	Black, Homogenous, 1st Flr. Rm. 114			Nonfibrous	100	No	NAD
071B	01059-149	Beige w/ Brown 12" X 12" Floor Tile Mastic	Black, Homogenous, 1st Flr. Rm. 114			Nonfibrous	100	No	NAD
072A	01059-150	Rubber Flooring	Grey, Homogenous, Hall by Receiving Rm			Nonfibrous	100	No	NAD

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072B	01059-151	Rubber Flooring	Grey, Homogenous, Hall by Receiving Rm			Nonfibrous 100	No	NAD
073A	01059-152	Rubber Flooring Mastic	Yellow, Homogenous, Hall by Receiving Rm			Nonfibrous 100	No	NAD
073B	01059-153	Rubber Flooring Mastic	Yellow/Brown, Heterogeneous, Hall by Receiving Rm			Nonfibrous 100	No	NAD
074A	01059-154	Mastic on Wall	Tan, Homogenous, Rm. 128			Nonfibrous 100	No	NAD
074B	01059-155	Mastic on Wall	Tan, Homogenous, Rm. 128			Nonfibrous 100	No	NAD

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075A	01059-156	Black Paper / Mastic on Fiber Glass HVAC Insulation	Black/Off-White, Heterogeneous, Basement	Chrysotile	20	Cellulose Nonfibrous	40 40	Yes	20
075B	01059-157	Black Paper / Mastic on Fiber Glass HVAC Insulation	Basement						PS
076A	01059-158	Generator Exhaust Insulation	Grey, Homogenous, Generator Rm.	Chrysotile	<1	Fibrous Glass Nonfibrous	8 92	Yes	<1
076B	01059-159	Generator Exhaust Insulation	Off-White, Heterogeneous, Generator Rm.	Chrysotile	80	Nonfibrous	20	Yes	80
076C	01059-160	Generator Exhaust Insulation	Generator Rm.						PS

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Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

200 Trapelo Rd.; Waltham, MA

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
077A	01059-161	Sheetrock	Off-White/Brown, Heterogeneous, Basement		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
077B	01059-162	Sheetrock	Off-White/Brown, Heterogeneous, Basement		Cellulose Fibrous Glass Nonfibrous	8 2 90	No NAD	
078A	01059-163	Joint Compound	Off-White, Homogenous, Basement		Nonfibrous	100	No NAD	
078B	01059-164	Joint Compound	Off-White, Homogenous, Basement		Nonfibrous	100	No NAD	
078C	01059-165	Joint Compound	Off-White, Homogenous, Basement		Nonfibrous	100	No NAD	

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Ten New England Business Center, Ste.105
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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
079A	01059-166	Pipe Gasketing (Flange)	Green, Heterogeneous, Basement		Cellulose Wollastonite Nonfibrous	25 10 65	No NAD	
079B	01059-167	Pipe Gasketing (Flange)	Off-White/Brown, Heterogeneous, Basement		Cellulose Wollastonite Nonfibrous	25 10 65	No NAD	
080A	01059-168	Window Caulking (Brown)	Black, Homogenous, Exterior Shriner Bldg.		Nonfibrous	100	No NAD	
080B	01059-169	Window Caulking (Brown)	Black, Homogenous, Exterior Shriner Bldg.		Nonfibrous	100	No NAD	
081A	01059-170	Window Glazing (Brown)	Black, Homogenous, Exterior Shriner Bldg.		Nonfibrous	100	No NAD	

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Ten New England Business Center, Ste.105
Andover, MA 01810

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200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
081B	01059-171	Window Glazing (Brown)	Exterior Shriner Bldg.				NA
Comments: No sample in sample bag.							
082A	01059-172	Window Caulking (Gray)	Grey, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	100 NAD
082B	01059-173	Window Caulking (Gray)	Grey, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	100 NAD
083A	01059-174	Window Glazing (Black)	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	100 NAD
083B	01059-175	Window Glazing (Black)	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	100 NAD

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01059.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Shriner Bldg.

Date Sampled: 3/25/2010
Date Received: 3/26/2010
Date Analyzed: 4/1/2010
Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client Sample/HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Asbestos %</i>	<i>Other Materials %</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
084A	01059-176	Skim Coat (Textured) on Concrete Columns	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous 100	No	NAD
084B	01059-177	Skim Coat (Textured) on Concrete Columns	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous 100	No	NAD
084C	01059-178	Skim Coat (Textured) on Concrete Columns	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous 100	No	NAD
085A	01059-179	Gray Window Glazing @ Stairwell Windows	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous 100	No	NAD
085B	01059-180	Gray Window Glazing @ Stairwell Windows	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous 100	No	NAD

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Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
086A	01059-181	Plaster on Front Entry Overhung (Skim - White)	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	
086B	01059-182	Plaster on Front Entry Overhung (Skim - White)	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	
086C	01059-183	Plaster on Front Entry Overhung (Skim - White)	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	
087A	01059-184	Plaster on Front Entry Overhung (Base - Gray)	Grey, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	
087B	01059-185	Plaster on Front Entry Overhung (Base - Gray)	Grey, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	

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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
087C	01059-186	Plaster on Front Entry Overhung (Base - Gray)	Grey, Homogenous, Exterior Shriner Bldg.			Nonfibrous	100	No	NAD
088A	01059-187	Base Flashing Roof Tars/ Felts	Black, Heterogeneous, Connector - Exterior	Chrysotile	10	Cellulose Nonfibrous	2 88	Yes	10
088B	01059-188	Base Flashing Roof Tars/ Felts	Connector - Exterior						PS
089A	01059-189	Tar + Gravel Roofing Tars / Felts	Black, Heterogeneous, Connector - Exterior			Cellulose Nonfibrous	25 75	No	NAD
089B	01059-190	Tar + Gravel Roofing Tars / Felts	Black, Heterogeneous, Connector - Exterior			Cellulose Nonfibrous	25 75	No	NAD

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Date Reported: 4/2/2010

200 Trapelo Rd.; Waltham, MA

Analysis by EPA Method 600/R-93/116

Client Sample/HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
090A	01059-191	Perimeter Flashing Tars / Felts	Black, Heterogeneous, Connector - Exterior	Chrysotile	4	Cellulose Nonfibrous	21 75	Yes	4
090B	01059-192	Perimeter Flashing Tars / Felts	Connector - Exterior						PS
091A	01059-193	Gypsum Roof Deck	Grey, Homogenous, Connector - Exterior			Nonfibrous	100	No	NAD
091B	01059-194	Gypsum Roof Deck	Grey, Homogenous, Connector - Exterior			Nonfibrous	100	No	NAD
092A	01059-195	White Caulking on PVC Roof Flashing / Penetrations	Off-White, Homogenous, Exterior Shriner Bldg.			Nonfibrous	100	No	NAD

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200 Trapelo Rd.; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
092B	01059-196	White Caulking on PVC Roof Flashing / Penetrations	Off-White, Homogenous, Exterior Shriner Bldg.		Nonfibrous	No	NAD	
093A	01059-197	Gray Duct Seam Caulking	Grey, Heterogeneous, Exterior Shriner Bldg.		Cellulose Nonfibrous	No	NAD	
093B	01059-198	Gray Duct Seam Caulking	Grey, Heterogeneous, Exterior Shriner Bldg.		Cellulose Nonfibrous	No	NAD	

Reviewed by: Steven Grevelis

Analyzed by: Steven Grevelis

Signature:

Signature:

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 Suite 105
 Andover, MA 01810
 Tel: 978-688-3736
 Tel: 800-659-1202
 Fax: 978-688-5494
 www.efiglobal.com

AEG# 01059

BULK SAMPLE CHAIN OF CUSTODY FORM

Your Name: C. Miner	Bill to: Same
Company: EFI	Address:
Address: Ten New England Business Center, Suite 105	City/State: Zip:
City/State: Andover, Massachusetts Zip: 01810	PO #:

Project Information

Project #/Name: 98350-02344 200 Trapelo Rd. Waltham, MA DCAM *Shriner Bldg.*
 Results To: Craig_miner@efiglobal.com Tel: (978) 688-3736
 Alternate: Fax: (978) 688-5954

Requested Turnaround Time

RUSH 1 Day 2 Day 3 Day 5 Day
 Stop at first positive Y or N

Media and Methodology

PLM - BULK EPA 600/R-93/116 Point Count Gravimetric

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
001A		2x4 Ceiling Tile, Sheetrock Type	4th Flr	1
B				2
002A		Sheetrock		3
B				4
003A		Joint Compound		5
B				6
C				7
004A		Joint Tape		8
B				9

Total Number of Samples Submitted: _____

Signatures

Relinquished By: <i>Sean Casoria</i>	Date: 3/25/10	Time: 1700
Received By: <i>[Signature]</i>	Date: 3/26/10	Time: 10:36
Relinquished By: _____	Date: _____	Time: _____
Received By: _____	Date: _____	Time: _____



Project Name/Number 98350-02344 Page of

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
10 - 005A		Seam Caulk	between Concrete + CMU Block	
11 - 005B			on Perimeter Walls, 4th Flr.	
12 - 006A		Transite Fume Hood	3rd Flr	
13 - 007A		Transite Lab Top	3rd Flr.	
14 - 008A		Transite Fume Exhaust Pipe	3rd Flr.	
15 - 009A		White 12x12 w/ Black Straks Floor Tile	3rd Flr.	
16 - 1 B				
17 - 010A		Mastic		
18 - 1 B				
19 - 011A		Tan Epoxy Floor	3rd Flr, Hall	
20 - 011B				
21 - 012A		2'x4' Lengthwise Fissure Ceiling tile	3rd Flr.	
22 - 1 B				
23 - 013A		Fire Door Insulation	3rd Flr Stairs	
24 - 013B				
25 - 014A		Black 4" Core Base	3rd Flr.	
26 - 014B				
27 - 015A		Mastic		
28 - 015B				
29 - 016A		Small Diameter Pipe Fitting ^{on Fiber glass}	3rd Flr.	
30 - 1 B				
31 - 1 C				
32 - 017A		Medi Dia. Pipe Fitting on Fiberglass	3rd Flr	
33 - 017B			2nd Flr. Rm. 209	
34 - 017C				
35 - 018A		Black Vapor Barrier / Flooring	3rd Flr. under Concrete + Epoxy Floors	
36 - 018B				
37 - 019A		Interior Window Caulk	3rd Flr.	
38 - 019B				

Record: ~~the~~ ~~the~~ 3/26/10



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Project Name/Number 98350-02344 Page _____ of _____

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
39	020A	Skim Coat on Concrete	Stairwell 3rd Flr	
40	B		2nd Flr	
41	C		1st Flr	
42	D		3rd Flr	
43	E		4th Flr	
44	021A	Brown w/Beige (2x12 Floor Tile	Rm. 304	
45	B			
46	022A	Mastic		
47	B			
48	023A	Sheetrock	3rd Flr. - Rm 316	
49	B			
50	023A	Joint Compound		
51	B			
52	C			
53	025A	Joint Tape		
54	B			
55	026A	Gray Sealant on Metal Fume Hood Exhaust	Stairwell 3rd Flr	
56	B		4th Flr.	
57	027A	Ceramic Wall Tile Grout	3rd Flr. Men's Rm.	
58	B			
59	028A	Ceramic Floor Tile Grout		
60	B			
61	029A	Glue around metal window panes	4th Flr. Mech. Rm.	
62	B			
63	030A	Plaster Skim Coat	3rd Flr. Rm 314	
64	B			
65	C			
67	031A	Plaster Base Coat		
68	B			
69	C			

Rec'd: ~~Mar~~ Mar 31/26/10



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Project Name/Number 98350-02344 Page _____ of _____

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
70	032A	Blue/gray Sheet Flooring	2nd Floor Hall	
71	032B			
72	033A	2'x4' Fissure Ceiling Tile	2nd Flr Rm 215	
73	033B			
74	034A	2'x4' Cratered Ceiling Tile	2nd Flr, Rm 223	
75	034B		Hall	
76	035A	Gray Cove base mastic	Rm Rm, 223	
77	035B			
78	036A	Carpet mastic		
79	036B			
80	037A	White w/ tan 12x12 Floor Tile	Rm 224	
81	037B			
82	038A		Mastic	
	038B			
83	040A	Faux Marble Floor Tile	Rm, 214	
84	040B			
85	041A		Mastic	
86	041B			
87	042A	Black Sink Undercoating	2nd Flr, Kitchen	
88	042B			
89	043A	Gray Cove Base	Rm, 223	
90	043B			
91	044A	Sheetrock	Rm, 224	
92	044B			
93	045A	Joint Compound		
94	045B			
95	045C			
96	046A	Joint Tape		
97	046B			
98	047A,B	Red Sealant on Electrical Conduit	Hallway - 2nd Floor	
99	048A,B	12"x12" Gray + Black Floor Tile	Room 207	

Recd: ~~the~~ the 3/26/10



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Project Name/Number 98350-02344 Page of

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
101 - 049A,B		-Associated Brown Mastic	Room 207	
101 - 050A,B		12" x 12" White w/ Gray Speck Floor Tile	Room 202	
102 - 051A,B		-Associated Yellow Mastic	↓	
103 - 052A,B		Silver Door Caulking	Hallway - 2nd Floor	
104 - 053A,B		Caulking Around Elevator	↓	
105 - 054A,B		Gray HVAC Seam Sealant	Rm. 209	
106 - 055A,B		12"x12" White w/ Brown Streak Floor Tile	Room 206	
107 - 056A,B		-Associated Brown Mastic	↓	
108 - 057A,B		Grey w/ streaks 12x12 Floor Tile	Hallway - 1st Floor	
109 - 058A,B		1 Mastic	↓	
110 - 059A,B		Sheetrock	1st Flr.	
111 - 060A,B,C		Joint Compound		
112 - 061A,B		Joint Tape		
113 - 062A,B		Pink Sink Undercoating	Rm 117	
114 - 063A,B		Lab Top		
115 - 064A,B		6" Gray Core Base	Hallway - 1st Floor	
116 - 065A,B		Yellow + Brown Mastic	↓	
117 - 066A,B		Black Terrazzo Flooring	Rm 127	
118 - 067A,B		Reddish Skim on Floor		
119 - 068A,B		White Stone Pattern Linoleum	Rm 117	
120 - 069A,B,C		textured paint on concrete		
121 - 070A,B		Beige w/ Brown 12x12 Floor Tile	1st Flr. Rm 114	
122 - 071A,B		1 Mastic		
123 - 072A,B		Rubber Flooring	Hall by Receiving Rm	
124 - 073A,B		1 Mastic		
125 - 074A,B		Mastic on Wall	Rm. 128	
126 - 075A,B		Black Paper/Mastic on Fiberglass HVAC Insulation	Basement	
127 - 076A,B,C		Generator Exhaust Insulation	Generator Rm	
128 - 077A,B		Sheetrock	Basement	
129 - 078A,B,C		Joint Compound		
130 - 079A,B		Pipe Gasketing (Flange)		

Note:
 * Analyze yellow + brown mastics separately

Rec'd: 3/26/10
Ann Lohr

Project Name/Number 98350-02344 Page of

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
131 - 080 A,B		Window Caulking (brown)	Exterior Shriver Bldg	
132 - 081 A,B		Window glazing (brown)		
133 - 082 A,B		Window Caulking (brown)		
134 - 083 A,B		Window glazing (black)		
135 - 084 A,B,C		Skim Coat (Textured) on Concrete Columns		
136 - 085 A,B		Gray window Glazing (Stairwell windows)	↓	
137 - 086 A,B,C		Plaster on Front Entry Overhang (skin-white)	↓	
138 - 087 A,B,C		↓ ↓ ↓ (base-gray)	↓	
139 - 088 A,B		Base Flashing roof W/ Tars/felts	Connector - Exterior	
140 - 089 A,B		Tar + Gravel Roofing Tars/felts	↓	
141 - 090 A,B		Perimeter Flashing Tars/felts		
142 - 091 A,B		Gypsum Roof Deck	↓	
143 - 092 A,B		White Caulking on PVC roof Flashing/Penetrations	Exterior Shriver Bldg	
144 - 093 A,B		Gray Joint Seal Caulking	↓	



AEC

Laboratories, LLC

MA License: AA000197

RI License: AAL-112A1

CT License: PH-0124

April 14, 2010

Client Name and Address:

EFI Global, Inc.

Ten New England Business Center, Ste.105

Andover, MA 01810

Re: Bulk Asbestos Results from Trapelo Road

200 Trapelo Road; Waltham, MA

Client Project Number: 98350-02344

AEC Laboratory Number: **01163.00**

Dear Craig Miner,

We at AEC Laboratories, LLC would like to thank you for your recent business. 25 sample(s) were received on 04/12/2010 from a job located at 200 Trapelo Road; Waltham, MA for 48 Hour Turn Around Time. The final report is enclosed for the aforementioned sample(s).

Please note that this report conforms to all applicable State and Federal requirements. AEC Laboratories, LLC follows prescribed procedures for the analysis of bulk materials to identify and quantify asbestos type and content.

These results only pertain to this job and should not be used in the interpretation of any other job. This report may be reproduced only in its entirety.

If you have any questions please do not hesitate to call me at the number below.

A handwritten signature in black ink, appearing to read "Steven Grevelis".

Steven Grevelis

Laboratory Manager

Enclosures:

- Analytical results
- Chain of Custody



810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Trapelo Road

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

200 Trapelo Road; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116						
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	Other Materials	Asbestos Present	Total Asbestos %	
094A	01163-01	Green Linoleum	Green, Homogenous, 3rd Flr. Cold Storage		Nonfibrous	No	NAD	
094B	01163-02	Green Linoleum	Green, Homogenous, 3rd Flr. Cold Storage		Nonfibrous	No	NAD	
095A	01163-03	Green Linoleum Mastic	Brown, Homogenous, 3rd Flr. Cold Storage	Chrysotile	Nonfibrous	Yes	4	
095B	01163-04	Green Linoleum Mastic	3rd Flr. Cold Storage				PS	
096A	01163-05	Styrofoam Ceiling Tile	Off-White, Homogenous, 3rd Flr. Cold Storage		Nonfibrous	No	NAD	

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.



810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Trapelo Road

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

200 Trapelo Road; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
096B	01163-06	Styrofoam Ceiling Tile	Off-White, Homogenous, 3rd Flr. Cold Storage			Nonfibrous	100	No	NAD
097A	01163-07	Brown Caulk @ Roof Deck	Brown, Homogenous, 4th Floor	Chrysotile	3	Fibrous Talc Nonfibrous	<1 97	Yes	3
097B	01163-08	Brown Caulk @ Roof Deck	4th Floor						PS
098A	01163-09	Gray Caulk @ Roof Deck	Grey, Homogenous, 4th Floor			Nonfibrous	100	No	NAD
098B	01163-10	Gray Caulk @ Roof Deck	Grey, Homogenous, 4th Floor			Nonfibrous	100	No	NAD

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Trapelo Road

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

200 Trapelo Road; Waltham, MA

Client		Analysis by EPA Method 600/R-93/116							
Sample/ HA ID	Laboratory Sample ID	Location	Description	Asbestos Type(s)	%	Other Materials	%	Asbestos Present	Total Asbestos %
099A	01163-11	Textured Concrete	Tan, Homogenous, 4th Floor	Chrysotile	4	Nonfibrous	96	Yes	4

Comments: Sample appears to be textured paint-like material.

099B	01163-12	Textured Concrete	4th Floor						PS
------	----------	----------------------	-----------	--	--	--	--	--	----

099C	01163-13	Textured Concrete	4th Floor						PS
------	----------	----------------------	-----------	--	--	--	--	--	----

100A	01163-14	2' x 2' Smooth Ceiling Tile	Off-White/Grey, Heterogeneous, 1st Flr. Rm. 101			Cellulose Fibrous Glass Nonfibrous	35 35 30	No	NAD
------	----------	--------------------------------	---	--	--	--	----------------	----	-----

100B	01163-15	2' x 2' Smooth Ceiling Tile	Off-White/Grey, Heterogeneous, 1st Flr. Rm. 101			Cellulose Fibrous Glass Nonfibrous	35 35 30	No	NAD
------	----------	--------------------------------	---	--	--	--	----------------	----	-----

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Trapelo Road

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

200 Trapelo Road; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116						
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>Other Materials</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>	
101A	01163-16	White Caulk on Ceiling Tile Grid	Off-White, Homogenous, 4th Flr.		Nonfibrous	100	No NAD	
101B	01163-17	White Caulk on Ceiling Tile Grid	Off-White, Homogenous, 4th Flr.		Nonfibrous	100	No NAD	
016D	01163-18	Small Diam. Pipe Fitting	Grey, Heterogeneous, Rm. 114		Fibrous Glass Nonfibrous	35 65	No NAD	
016E	01163-19	Small Diam. Pipe Fitting	Grey, Heterogeneous, Rm. 315		Fibrous Glass Nonfibrous	35 65	No NAD	
017A	01163-20	Med. Diam. Pipe Fitting	Grey, Heterogeneous, Rm. 303	Chrysotile <1	Fibrous Glass Nonfibrous	35 65	Yes <1	

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810 Broad Street - Weymouth, MA 02189 - Ph. 781.337.0567

Client: EFI Global, Inc.
 Ten New England Business Center, Ste.105
 Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494
Re: Trapelo Road

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

200 Trapelo Road; Waltham, MA

<i>Client</i>		Analysis by EPA Method 600/R-93/116							
<i>Sample/ HA ID</i>	<i>Laboratory Sample ID</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos Type(s)</i>	<i>%</i>	<i>Other Materials</i>	<i>%</i>	<i>Asbestos Present</i>	<i>Total Asbestos %</i>
017D	01163-21	Med. Diam. Pipe Fitting	Grey, Heterogeneous, Rm. 207	Chrysotile	<1	Fibrous Glass Nonfibrous	35 65	Yes	<1
017E	01163-22	Med. Diam. Pipe Fitting	Grey, Heterogeneous, Rm. 201			Fibrous Glass Nonfibrous	35 65	No	NAD
102A	01163-23	Textured Ceiling in Stairwells	Off-White, Heterogeneous, 1st Floor			Nonfibrous	100	No	NAD
102B	01163-24	Textured Ceiling in Stairwells	Off-White, Heterogeneous, 2nd Floor			Nonfibrous	100	No	NAD
102C	01163-25	Textured Ceiling in Stairwells	Off-White, Heterogeneous, 3rd Floor			Nonfibrous	100	No	NAD

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Client: EFI Global, Inc.
Ten New England Business Center, Ste.105
Andover, MA 01810

AEC Laboratories Project Number: 01163.00
Client Project Number: 98350-02344

Attention: Craig Miner
Phone: 978-688-3736 **Fax:** 978-688-5494

Date Sampled: Not Provided
Date Received: 4/12/2010
Date Analyzed: 4/14/2010
Date Reported: 4/14/2010

Re: Trapelo Road

200 Trapelo Road; Waltham, MA

Analysis by EPA Method 600/R-93/116

<i>Client</i>										
<i>Sample/</i>	<i>Laboratory</i>	<i>Location</i>	<i>Description</i>	<i>Asbestos</i>		<i>Other</i>		<i>Asbestos</i>	<i>Total</i>	
<i>HA ID</i>	<i>Sample ID</i>			<i>Type(s)</i>	<i>%</i>	<i>Materials</i>	<i>%</i>	<i>Present</i>	<i>Asbestos %</i>	

Reviewed by: Steven Grevelis

Analyzed by: Steven Grevelis

Signature:

Signature:

Reporting Notes: NAD = "No Asbestos Detected" PS = "Positive Stop" <1% = Trace Due to inherent Polarized Light Microscope limitations, fibers and/or bundles below the resolution of the light microscope (approximately <.25 microns in width) will not be detected. "NAD" and "Trace" samples should be confirmed by Transmission Electron Microscopy. AEC Laboratories, LLC (AEC) maintains liability limited to cost of analysis only. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by AEC. AEC is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client. AEC retains all samples for thirty (30) days after reporting. After this period AEC will dispose of all samples according to all local, state, and federal guidelines, unless requested in writing by the client. All results are expressed as a percentage based on Calibrated Visual Estimate (CVE), unless otherwise noted. Distinct layers are noted by .1, .2, etc. suffixes to lab ID.

ATTACHMENT D

LEAD LABORATORY REPORT



EMSL Analytical, Inc.

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>

carleplacelab@emsl.com

EMSL Order:	061713431
CustomerID:	EAF166
CustomerPO:	98350-06352
ProjectID:	

Attn: **Lynda McDermott**
EFI Global, Inc.
155 West Street, Suite 6
Wilmington, MA 01887

Phone: (978) 688-3736
 Fax: (978) 688-5494
 Received: 08/08/17 9:36 AM
 Collected: 8/4/2017

Project: **Project No: 98350-06352, CERC Interior-Fernald School Waltham, MA**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
PB01	061713431-0001	8/4/2017	8/11/2017	0.013 % wt
Site: Hcll A-3				

Michelle McGowan, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY Lab ID 102344 is accredited by the AIHA-LAP, LLC in the Environmental Lead accreditation program for Lead in Paint, CT PH-0249, NYS ELAP 11469

Initial report from 08/11/2017 14:44:03

061713431

155 West Street, Suite 6
 Wilmington, MA 01887
 T: 978-688-3736
 TF: 800-659-1202
 F: 978-688-5494
 www.efiglobal.com

EFI Global
 Engineering, Fire &
 Environmental Services

BULK SAMPLE CHAIN OF CUSTODY FORM

Report to (Name):		Bill To:	Accounts Payable
Company:	EFI Global, Inc.	Address:	Same
Address:	155 West Street	City, State, Zip:	Same
	Suite 6	Telephone:	800-659-1202
City, State, Zip:	Wilmington, MA 01887	Fax:	978-688-5494

Project Information

Project No./ Description:	98350- 06352	CERC Interior - Fernald School Waltham MA.
Email Report to:	Lynda McDermott@efiglobal.com	
Alternate:	John - Vaz @ " " Sean - Cassidy @ " "	

Requested Turnaround Time:

<input type="checkbox"/> RUSH	<input type="checkbox"/> 1 day	<input type="checkbox"/> 2 day	<input type="checkbox"/> 3 day	<input checked="" type="checkbox"/> 5 day
-------------------------------	--------------------------------	--------------------------------	--------------------------------	---

Media and Methodology

Type of Analysis:	PB - Flame NAs	Check for Positive Stop:	<input type="checkbox"/>
Notes:	Analyze all plaster and joint compound samples	Date Collected:	8/4/17

Sample ID	Type of Material	Location	Friable Y/N	Condition G/D/SD
PB01	White Paint on Concrete	Hall A-3.		

17 AUG 28 11:53:36
 ENSI ANALYTICAL INC.
 CARLETON PLACE
 WILMINGTON, MA 01897

Total Number of Samples Submitted: _____

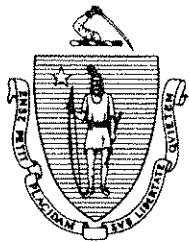
Samplers Name: John Vaz

Relinquished By (Client): _____

Received By (Lab): _____

By: [Signature] Date: 8-8-17 Time: 9:36am

RECEIVED
 AUG 07 2017
 By: [Signature]



DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT
GOVERNOR

JUDYANN BIGBY, MD
SECRETARY

JOHN AUERBACH
COMMISSIONER

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
Bureau of Environmental Health
Childhood Lead Poisoning Prevention Program
250 Washington Street, 7th floor
Boston, MA 02108-4619
800-532-9571

DISCLAIMER CONCERNING LEAD DETERMINATION REPORT

The information contained in this report concerning the presence of lead paint does not constitute a comprehensive lead inspection. The surfaces tested represent only a portion of those surfaces that would be tested to determine whether the premises are in compliance with the Massachusetts Lead Poisoning Prevention Law (Massachusetts General Laws, chapter 111, sections 189A through 199B).

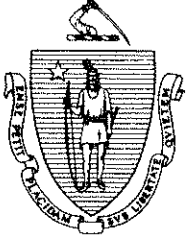
Serious lead poisoning hazards are created when materials containing lead paint are disturbed, unless proper safety guidelines are followed. Therefore, Massachusetts's law and regulations require that:

Before any deleading work can begin, the premises must first be subject to a comprehensive lead paint inspection. This inspection must be conducted by a Massachusetts fully licensed lead inspector. The determination report this disclaimer is attached to is **NOT** a comprehensive lead paint inspection report. Once the inspection requirements have been met, a licensed deleader must do all high risk deleading, such as scraping or the use of caustics. Property owners, their agents, and licensed lead-safe renovators may do some deleading activities without a deleader's license. Before they do so, though, owners, their agents, and lead-safe renovators must become trained and receive authorization to perform these activities. Owners and their agents should contact the Childhood Lead Poisoning Prevention Program for more information on the specific activities they may perform and on how to become trained and authorized to perform these deleading activities. Lead-safe renovators are licensed by the Division of Occupational Safety (DOS) and should contact them for training and authorization requirements. **Letters of Full Compliance will be withheld if either the inspection requirements or authorization requirements are not met.**

Any renovating or rehabilitation of premises containing dangerous levels of lead paint must be done in compliance with both the EPA's Renovation, Remodeling and Repainting regulations as well as the procedures set forth in the Deleading Regulations issued by the Division of Occupational Safety (454 Code of Massachusetts Regulations 22.11), including sealing off the work area from adjacent areas, and performing a thorough clean-up. Contact the Childhood Lead Poisoning Prevention Program for additional guidance on the distinction between renovation and deleading.

If a child under six resides in this dwelling, the property owner may face criminal or civil liabilities unless all lead paint violations have been corrected. This lead report cannot assure that the property owner has met his or her obligations under the law.

It is unlawful for rental property owners to use the presence of lead as the basis for discrimination against tenants or potential tenants with young children.



DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

JUDYANN BIGBY, MD
SECRETARY

JOHN AUERBACH
COMMISSIONER

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
Bureau of Environmental Health
Childhood Lead Poisoning Prevention Program
250 Washington Street, 7th floor
Boston, MA 02108-4619
800-532-9571

ALERT FOR FEDERALLY ASSISTED PROPERTIES

Please be advised that in some instances Massachusetts' law and regulations are more stringent than federal requirements regarding the inspection and abatement of lead hazards. Lead hazard abatement or remediation activities, including paint stabilization, done based on the attached determination report (or on a HUD Inspection Report), which is not a comprehensive initial inspection, is in conflict with Massachusetts inspection requirements. Should any lead hazard abatement or remediation take place based solely on either this determination report or on a HUD Inspection Report, **the property will NOT be able to receive a Letter of Full Compliance. Current and future property owners may not be protected from strict liability without a Letter of Full Compliance.**

This document and all lead-related inspection, reinspection, and compliance documents must be provided to the current owner and must be transferred upon sale of the property along with the Property Transfer Notification.

For more information please contact the inspector who conducted the attached determination report or the Childhood Lead Poisoning Prevention Program at 1-800-532-9571 or www.state.ma.us/dph/clppp.



Lead Inspection / Risk Assessment Report

1 Arcadia Street
Dorchester, MA 02122

Toll Free 800-349-7779

Boston 617-288-8870

Facsimile 617-282-7783

E-mail- inspections@asapenvironmental.com

Address#	Street	Apt. #
- 2 0 0	T R A P E L L O R D	- - - -

City	Zip Code
W A L T H A M , M A	0 2 4 5 2

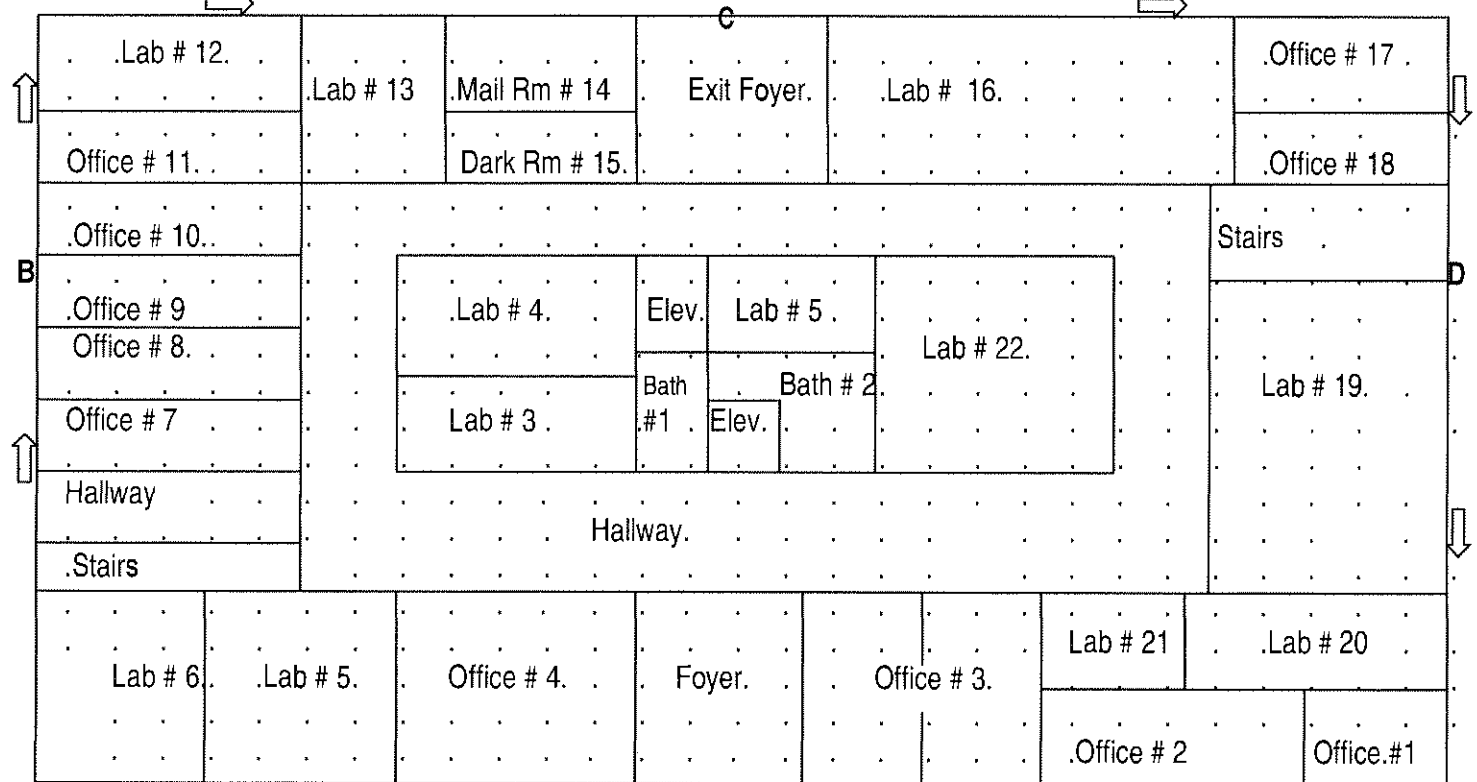
Owner Name:	University of Massachusetts Medical Center	Number of Rooms in Unit <u>100</u>
Owner Address:	200 Trapello Rd, Waltham, MA 02452	Property Type:
Contact Information:	978-688-3736 7 Craig Miner 617-21-5866	Single Family _____
Client Name (if Different from Owner):	EFI Global	Multi Family _____ # Units _____
Client Address:	10 New England Business Center, Andover, MA 01810	Condominium _____ # Units _____
		Day Care _____ Other: Medical Ctr _____

Key:	Lead Column	Key:	Delead/ IC Method Column		
COV	Covered	CAP	Capped	SCR	Scraped
VB	Vinyl Baseboard	COV	Covered	DIP	Dipped
MET	Metal	ENC	Encapsulated	REM	Removed
VR	Vinyl Rep. Window	MI	Made Intact	REP	Replaced
MR	Metal Rep. Window	PRE	Prepared for Enc	REV	Reversed
NA	Not Accessible	VR/MR	Vinyl/Metal Rep Window	INT	Intact
NC	No Coating	SFR	Storm Frame Removed		
Tile	Tile (testing suggested)	<input type="checkbox"/>	Component Does not exist		
DC	Dropped Ceiling				

Laundry in Basement ?	Yes or No
Finished Space in Basement ?	Yes or No
Testing Method Used:	
Na ₂ S Exp. Date _____	
X-Ray Fluorescence	
Model RMD-L-1 Serial # 1810	

Comments/Notes:

Floor# _____ (this is the level within the building of the unit being inspected)



A (Street Side) Start Here
Pb (lead) equal to or greater than 1.0 mg/cm² with x-ray fluorescence or positive with Na₂S is **Dangerous**.

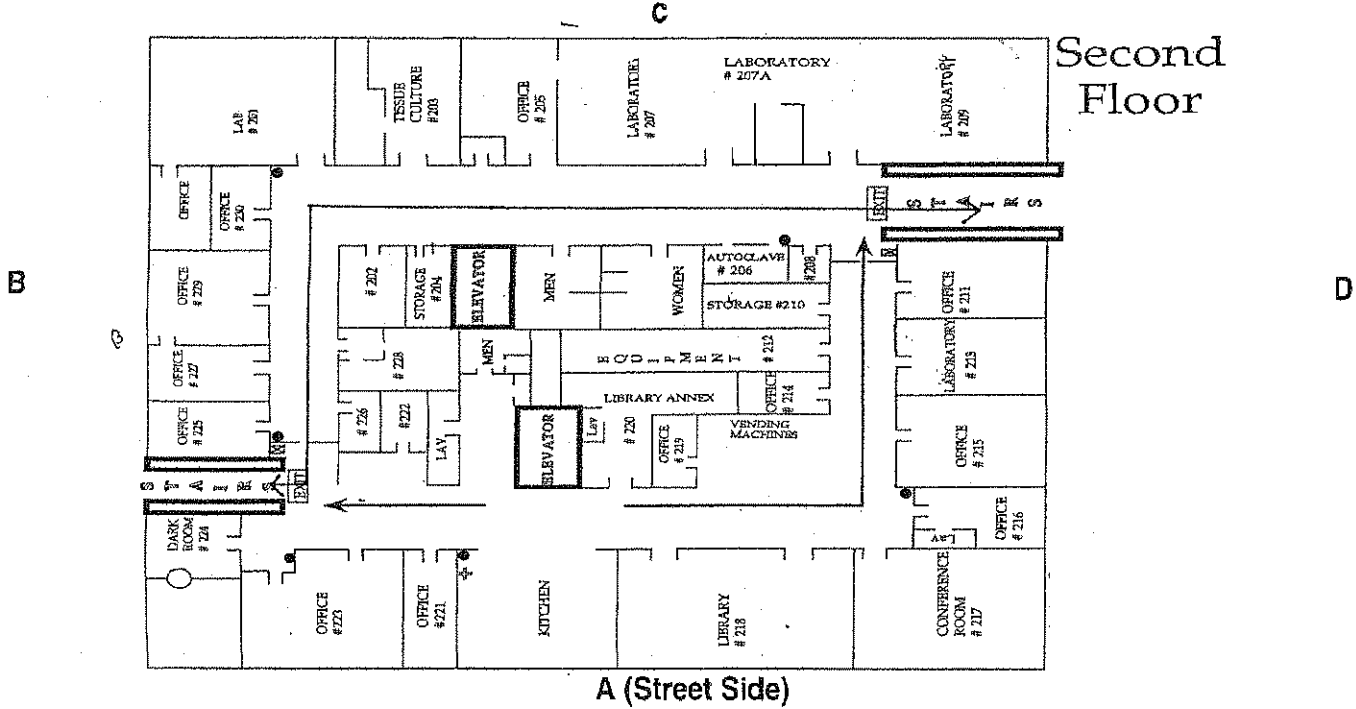
- XRF Calibration Recorded in Log Book ✓ Check off when complete
- Address Verified through USPS ✓ Check off when complete
- Research on Lead-Related History for Address ✓ Check off when complete

www.state.ma.us/dph/clppp or 800-532-9571

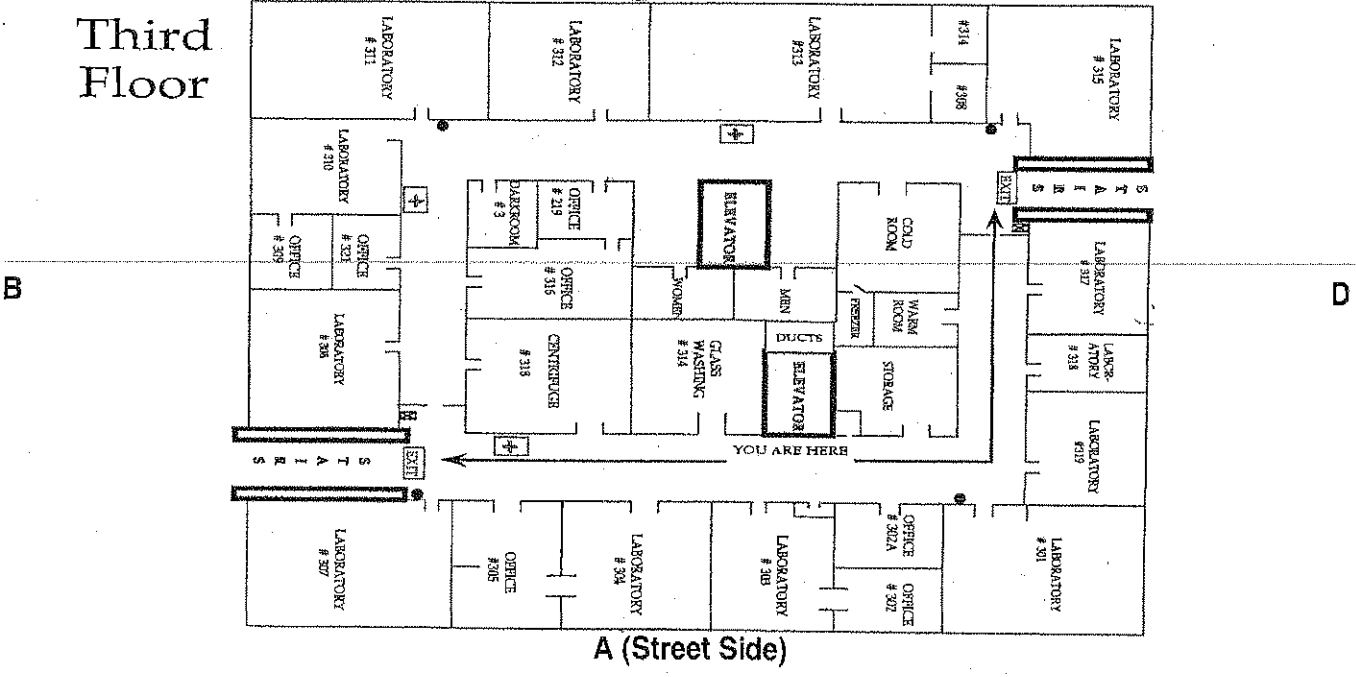
Christopher Maracic M/R-2006
 Inspector Name License # Signature Date
 April 9, 2010
 LI/RA rev 8/08

2	0	0	T	R	A	P	E	L	L	O	R	D						
City												Zip Code						
WALTHAM, MA												0 2 4 5 2						

loor# (this is the level within the building of the unit being inspected)



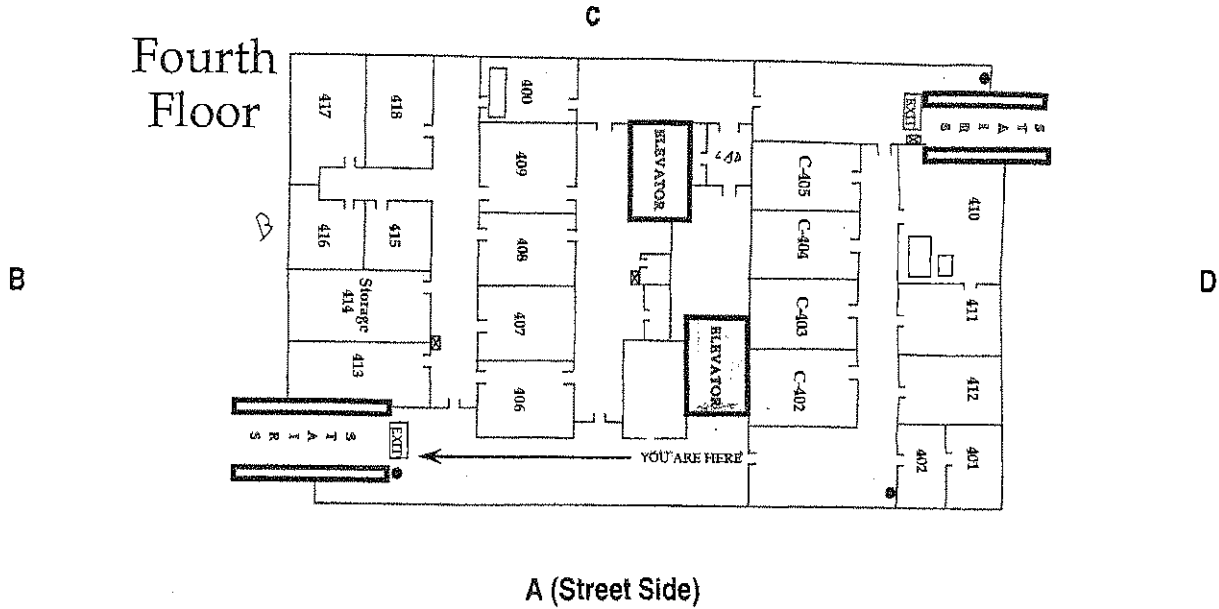
loor# (this is the level within the building of the unit being inspected)



-	2	0	0	T	R	A	P	E	L	L	O	R	D					
City													Zip Code					
W	A	L	T	H	A	M	,	M	A					0	2	4	5	2

Floor# 4 (this is the level within the building of the unit being inspected)

Fourth Floor



ADDRESS: _____

Apt# _____

City _____

INSPECTION HISTORY

Determination				
0	4	0	9	1
Lead Hazards?				

Y
 N

Inspector: Christopher Maracic, Lic#M/R-2006

Signature *Christopher Maracic*

Comprehensive Initial Inspection				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Comp Initial w/Partial PCAD				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Addendum (add-on to Initial Inspection)				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Addendum as Full Insp. (Lost Docs)				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Walk Through for Ed/Consultation				

Inspector Name: _____, Lic# _____

Signature _____

REINSPECTION HISTORY

Visual Portion of Reocc. Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Visual Portion of Reocc. Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for Reocc. Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for Reocc. Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for Reocc. Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Visual Portion of Final Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Visual Portion of Final Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for Final Reinsp. (No Reocc)				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

INTERIM CONTROL

Risk Assessment				
Urgent Pb. Hazards?				

Y
 N

R.A. Name: _____, Lic# _____

Signature _____

Dust Taken for Risk Assessment				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

Visual Portion of Reinspection for Interim Control				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

Dust Taken for Risk Assessment Reinsp.				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

Visual Portion of Reinspection for Interim Control				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

Dust Taken for Risk Assessment Reinsp.				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

Risk Assessment Recertification				
Urgent Pb. Hazards?				

Y
 N

R.A. Name: _____, Lic# _____

Signature _____

Dust Taken for RA Recertification				

P
 F

R.A. Name: _____, Lic# _____

Signature _____

POST COMPLIANCE ASSESSMENT DETERMINATIONS

PCAD				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Full Inspection Acting as PCAD				
Lead Hazards?				

Y
 N

Inspector Name: _____, Lic# _____

Signature _____

Visual Portion of PCAD Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for PCAD Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

Dust Taken for PCAD Reinspection				

P
 F

Inspector Name: _____, Lic# _____

Signature _____

ADDRESS: _____

Apt# _____

City _____

Page 7 of 12

REOCCUPANCY CERTIFICATE HISTORY

Certificate of Reoccupancy
Only after High/Mod Risk (# rooms rule)

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Reoccupancy
Only after High/Mod Risk (# rooms rule)

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Reoccupancy
Only after High/Mod Risk (# rooms rule)

Inspector Name: _____, Lic# _____

Signature _____

COMPLIANCE HISTORY

Letter of Full Initial Compliance
No prior history/ No signs of UD

Inspector Name: _____, Lic# _____

Signature _____

Letter of Interim Control
No prior Comp. Expires in 1 yr.

Inspector Name: _____, Lic# _____

Signature _____

Recertification of Interim Control
Expires 2 yrs from original Interim Control

Inspector Name: _____, Lic# _____

Signature _____

Letter of Full Deleading Compliance
Dust wipes if No Reocc.

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Maintained Compliance
No Work= No Dust Work = 7 Dust

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Restored Compliance
Dust wipes and auth. people

Inspector Name: _____, Lic# _____

Signature _____

COMPLIANCE HISTORY (CONT.)

Certificate of Maintained Compliance
No Work= No Dust Work = 7 Dust

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Restored Compliance
Dust wipes and auth. people

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Maintained Compliance
No Work= No Dust Work = 7 Dust

Inspector Name: _____, Lic# _____

Signature _____

Certificate of Restored Compliance
Dust wipes and auth. people

Inspector Name: _____, Lic# _____

Signature _____

OTHER HISTORY: WAIVERS/UD/EPA RRP

Approved CLPPP Waiver
Attach to Comp Docs

CLPPP Insp. Name: _____, Lic# _____

Signature _____

Approved CLPPP Waiver
Attach to Comp Docs

CLPPP Insp. Name: _____, Lic# _____

Signature _____

UD / DES Visual Reinspection
No LOC Issued

Inspector Name: _____, Lic# _____

P
F

Signature _____

UD / DES Dust Taken
No LOC Issued

Inspector Name: _____, Lic# _____

P
F

Signature _____

UD / DES Dust Taken
No LOC Issued

Inspector Name: _____, Lic# _____

P
F

Signature _____

EPA RRP Visual And Dust
No LOC Issued and NO UD

Inspector Name: _____, Lic# _____

P
F

Signature _____

EXPLANATION OF LEAD INSPECTION / RISK ASSESSMENT REPORT FORM COLUMNS

This page provides general information needed to understand the lead inspection/risk assessment report. However, you should speak with the inspector/risk assessor before you start to do any work on your home.

SIDE	Refers to A, B, C, or D side of the building or room. See the diagram on the cover sheet. The "A" side of the building or room is the side facing the street that gives the property its address (usually, it is the front of the building). Keeping your back to this street, from the "A" side move clockwise to the "B" side on your left, the "C" side opposite you, and the "D" side to the right. Numbering is from left to right.
LOCATION/ SURFACE	Refers to the building component(s) being tested. Some surfaces may be made up of more than one part. For example, "Baseboard" may refer to four separate pieces of wood (one on each wall), but is still considered one surface.
LEAD	The actual lead result. Each surface tested must have a result recorded in the "Lead" column. <ul style="list-style-type: none"> • A number shows that the surface was tested with an XRF analyzer. A number (or average number) equal to or greater than 1.0 mg/cm² is a dangerous level of lead. • A "pos" or "neg" shows that the surface was tested with sodium sulfide. "Pos" means that there is a dangerous level of lead. • "N/A" means that the inspector was not able to test the surface. Unless the owner can get a sample to test, the inspector must assume the surface contains lead and require it to be delead, if necessary. • "MET" or "MR" means that a metal surface was not tested and only needs to be intact, even if it is a leaded surface. However, metal handrails, metal window sills, and metal railing caps, need to be delead if they test equal to or greater than 1.0 mg/cm², or is marked "N/A." • For key to abbreviations like "COV", "VB", "VR" or "MR", "NC", "Tile", "DC", see the cover page. • When a component box is slashed and there are test results above and below the diagonal line, the result on the "bottom" represents results below 5 ft. and the "top" result indicates the test result above 5 ft.
TYPE OF HAZARD	Not all lead paint must be delead. This column tells you IF and WHY a surface needs deleading. The deleading standards below may not apply for Interim Controls. Speak to your risk assessor for more information. <ul style="list-style-type: none"> • "M/I" circled means that the surface is a moveable/impacted surface and must be delead in its entirety. • "SF" circled indicates that there is a storm frame present which requires the blind stop and exterior sill be delead as interior moveable / impacted surfaces. • "A/M" circled means that the surface is "accessible mouthable" and must be delead to a minimum of five feet high, four inches in from the edge or corner. • "L" circled means that the surface is loose and must, at minimum, be made intact. • If more than one choice is circled, the rules for deleading may change depending upon what method of deleading you choose. Speak to the inspector for more information. • "N/A" means the inspector was unable to determine if the surface was a lead hazard. The person doing the deleading must check this surface and follow all the rules for deleading. Speak to the inspector for more information. • If nothing is circled in the column, then it is likely the surface does not need deleading. Speak to the inspector for more information. Remember, this does not mean the entire surface is lead free, it just does not require deleading in its current condition.
URG HAZ?	This column is only completed during a risk assessment. A risk assessment is an evaluation of a home's suitability for Interim Control. Only a licensed risk assessor can do a risk assessment, not all inspectors are risk assessors. If "Y" is circled, then this surface is considered an "Urgent Lead Hazard" and some type of deleading work is required to qualify for Interim Control.
IC DATE	The date the licensed risk assessor determines the surface meets the standards for Interim Control.
IC METH	The deleading method or structural repair done to qualify the surface for Interim Control. Refer to the deleading codes key on the cover page.
DELEAD DATE	The date that the lead inspector reinspects the surface and finds that it has been successfully brought back into compliance.
DELEAD METH	The method used to bring a surface into full compliance. Refer to codes in the Key on the cover page of the PCAD.
EXCLUDED SURFACES	The amount of loose paint on a surface as measured by the lead inspector. "N/A" means that the inspector was not able to measure the loose paint, but has determined it is more than the cut-off for moderate risk making intact.

Executive Summary

ASAP Environmental, Inc. was retained by EFI Global to conduct an EPA/OSHA pre-renovation/demolition lead based paint survey of painted/coated surfaces at the University of Massachusetts Medical School Shriver Center at 200 Trapello Road in the City of Waltham, MA 02452 on April 9, 2010.

The intent of the lead paint survey was to identify building surfaces coated with lead based paint, utilizing XRF technology. The information collected, as a result of the testing, can be used to ensure OSHA compliance relative to worker exposure and proper disposal of renovation/demolition debris.

The information contained in this report summarizes the sampling and analytical methodologies, site description, materials found to contain lead, locations of surfaces, substrate material, sample results and qualifications of personnel.

Survey Personnel

The survey for Lead Based Paint was conducted by Christopher Maracic, Master Lead Inspector and Risk Assessor certified by the Commonwealth of Massachusetts, license #M/R-2006

Site Description

The subject property is a 4 story concrete and brick structure that was previously used as a medical school consisting of offices, laboratories and storage rooms.

Testing Methodology

Painted surfaces were analyzed using an X-Ray Fluorescence Analyzer (XRF) manufactured by RMD Instruments of Watertown, MA. The RMD, LPA-1 Lead Paint Analyzer is a complete lead paint analysis system that quickly, accurately and non-destructively measures the concentration of LBP on the surface tested.

The LPA-1 XRF relies on the measurement of the K-shell x-rays to determine the amount of lead present in the painted surface. K-shell X-Rays can penetrate many layers of paint and allow true measurement of the lead content of paint to be made without being significantly affected by the thickness or number of layers of paints on the surface of the component.

The LPA-1 XRF has the ability to analyze and compute corrections for the difference in the energy spectrums relating the different substrates. This analysis of the energy spectrum means that the lead paint reading displayed on the instrument already accounts for any substrate effects and no correction is required by the operator. The LPA's field of view is limited to a depth of 3/8", deep enough to handle virtually all painted surfaces, but not prone to detect lead objects located behind the surface.

A validation test was performed to ensure the instrument was operating properly. The validation test was performed on a calibration test block provided by the manufacturer to determine if the instrument measured consistently on a day to day basis. A series of three standard measurements consisting of 60 seconds per measurement were taken on the test block. The individual readings were recorded and compared to the factory test data provided with the instrument. Calibrations conducted indicated the instrument was functioning within the standard deviation as defined by the manufacturer.

In conducting the Lead Determination, various representative architectural elements were tested. Not all painted surfaces were tested for the presence of lead based paint. Surfaces tested consisted of floors, walls, baseboards, doors, door frames, windows, window frames, cabinets, ladders, mechanical equipment and exterior surfaces.

Address: 200 Trapello Road, U of MA Medical School Shriver Center, Waltham, MA 02452

XRF READINGS

First Floor

Location	Component	Substrate	Lead
Hallways	Walls	Concrete Block	0.0, -0.1, -0.0, 0.3, -0.1
Hallways	Floors	Vinyl Tile	0.3, -0.0, -0.0, -0.2
Hallways	Ceilings	Dropped Fiberglass panels	No Coating
Hallways	Doors	Wood	0.0, 0.0, -0.0
Hallways	Door Frames	Metal	0.5, 0.3, 0.1, -0.0, 0.3
Hallways	Baseboards	Vinyl	0.0, 0.0, -0.3, -0.0
Offices	Walls	Concrete Block	0.3, 0.3, -0.1, 0.0, -0.0, 0.1
Offices	Floors	Vinyl Tile	-0.2, -0.0, 0.0
Offices	Ceilings	Dropped Fiberglass panels	No Coating
Offices	Doors	Wood	-0.1, 0.0, -0.0, -0.0
Offices	Door Frames	Metal	0.4, 0.4, -0.0, 0.2, 0.2
Offices	Baseboards	Vinyl	0.4, 0.4, -0.0, 0.2, 0.2
Labs	Walls	Concrete Block	0.3, 0.3, -0.1, 0.0, -0.0, 0.1
Labs	Floors	Vinyl Tile	-0.2, -0.0, 0.0
Labs	Ceilings	Dropped Fiberglass panels	No Coating
Labs	Doors	Wood	-0.1, 0.0, -0.1, -0.1
Labs	Door Frames	Metal	0.1, 0.2, -0.0, 0.4, 0.2
Labs	Cabinets	Metal	0.0, 0.2, 0.0, -0.3
Labs	Cabinets	Wood	-0.0, -0.1, 0.0, -0.1
Bathrooms	Stall walls/doors	Metal	0.3, -0.0, 0.0, -0.0,
Bathrooms	Walls	Ceramic Tile	0.1, -0.0, 0.2, 0.1

Second Floor

Hallways	Walls	Concrete Block	-0.2, 0.3, 0.2, 0.0, -0.0
Hallways	Floors	Vinyl Tile	0.1, -0.0, 0.1
Hallways	Ceilings	Dropped Fiberglass panels	No Coating
Hallways	Doors	Wood	0.0, 0.0, -0.0
Hallways	Door Frames	Metal	0.2, 0.1, -0.1, 0.1
Hallways	Baseboards	Vinyl	0.1 0.0, -0.1, -0.0
Kitchen	Walls	Concrete Block	0.0, -0.0, 0.1
Kitchen	Floors	Vinyl Tile	-0.1, -0.0, 0.1
Kitchen	Cabinets	Wood	0.0
Kitchen	Windows	Wood	-0.0
Kitchen	Window Frames	Metal	No Coating
Kitchen	Baseboards	Vinyl	0.0, 0.1
Labs/Offices	Walls	Concrete Block	0.2, 0.1, -0.4, 0.1, -0.0,
Labs/Offices	Floors	Vinyl Tile	-0.0, -0.0
Labs/Offices	Doors	Wood	-0.1, 0.0, -0.1, -0.1
Labs/Offices	Door Frames	Metal	0.1, 0.2, -0.0, 0.4, 0.2
Labs/Offices	Cabinets	Metal	0.0, 0.2, 0.0, -0.3
Labs/Offices	Cabinets	Wood	0.3, -0.0, 0.0, -0.0,
Bathrooms	Stall walls/doors	Metal	0.5, -0.0, 0.2
Bathrooms	Walls	Ceramic Tile	0.1
Bathrooms	Doors	Wood	0.0
Bathrooms	Door frames	Metal	0.6, 0.2, 0.3

Address: 200 Trapello Road, U of MA Medical School Shriver Center, Waltham, MA 02452

XRF READINGS

Third Floor

Location	Component	Substrate	Lead
Hallways	Walls	Concrete Block	-0.0, 0.3, -0.1, 0.4
Hallways	Floors	Concrete	0.1, -0.3, -0.1
Hallways	Doors	Wood	-0.1, 0.0, -0.1
Hallways	Door Frames	Metal	0.2, 0.4, 0.2, -0.1
Hallways	Baseboards	Vinyl	-0.0, -0.3, -0.0
Hallways	Baseboards	Vinyl	0.0, 0.0
Labs/Offices	Walls	Concrete Block	0.2, 0.1, -0.4, 0.1, -0.0,
Labs/Offices	Floors	Vinyl Tile	-0.0, -0.0
Labs/Offices	Doors	Wood	-0.1, 0.0, -0.1, -0.1
Labs/Offices	Door Frames	Metal	0.1, 0.2, -0.0, 0.4, 0.2
Labs/Offices	Door Frames	Wood	0.0, -0.2, 0.0
Labs/Offices	Cabinets	Metal	0.1, 0.1, 0.0, -0.1
Labs/Offices	Cabinets	Wood	-0.0, 0.0, -0.0,
Labs/Offices	Baseboards	Concrete	0.6, 0.2, -0.0, 0.2
Labs/Offices	Baseboards	Vinyl	0.0, 0.0
Bathrooms	Stall walls/doors	Metal	0.2, -0.0, 0.0
Bathrooms	Walls	Ceramic Tile	-0.3, -0.0
Bathrooms	Doors	Wood	-0.0
Bathrooms	Door frames	Metal	0.1, 0.2
Telephone Room	Walls	Wood panels	0.1, -0.0

Fourth Floor

Hallways	Walls	Concrete Block	0.4, 0.1, 0.3
Hallways	Floors	Concrete	0.2, 0.2
Hallways	Doors	Wood	0.0, 0.0, -0.0
Hallways	Door Frames	Metal	0.3, 0.3, -0.0, 0.2
Hallways	Baseboards	Vinyl	0.1, 0.0
Labs/Offices	Walls	Concrete Block	0.1, -0.0, 0.2, 0.0
Labs/Offices	Floors	Vinyl Tile	-0.0, -0.0
Labs/Offices	Doors	Wood	-0.1, -0.1
Labs/Offices	Door Frames	Metal	0.1, 0.2, -0.0, 0.4, 0.2
Labs/Offices	Cabinets	Metal	-0.1, 0.2
Labs/Offices	Cabinets	Wood	0.0, -0.0,
Mechanical Room	Roof Ladder (by Rear Elevator)	Metal	3.4, 3.1 (POS)
Staircase	Walls	Concrete	0.3, 0.2, 0.2
Staircase	Floors	Concrete	0.2, 0.2
Staircase	Doors	Wood	0.0, 0.0, -0.0
Staircase	Door Frames	Metal	0.4, 0.1, -0.0, 0.5
Staircase (Landings)	Baseboards	Vinyl	0.1, 0.0, 0.2, -0.2
Staircase (Stairs)	Baseboards	Vinyl	2.4, 2.1, 2.9 (POS)
Staircase	Railings	Wood	0.0, -0.0, -0.0
Staircase	Balusters	Metal	-0.0, -0.0, -0.0
Staircase	Treads/Risers	Concrete	0.3, 0.1, 0.0, 0.2

Address: 200 Trapello Road, U of MA Medical School Shriver Center, Waltham, MA 02452**XRF READINGS****Basement**

Location	Component	Substrate	Lead
Basement	Walls	Concrete	0.0, 0.0, 0.1
Basement	Floors	Concrete	No Coating
Basement	Doors	Wood	0.0, 0.0
Basement	Door Frames	Metal	0.1, 0.4
Basement	Door Frames	Wood	0.1, -0.2
Basement	Railings	Metal	No Coating
Basement	Motor Mounts	Metal	0.3, 0.1, -0.1, 0.1, -0.1,
Basement	Pipe Supports	Metal	0.4, 0.2, 0.4
Basement	Compressors	Metal	0.0, -0.1, 0.0
Basement	Boiler	Metal	2.3, 1.8, 1.5 (POS)
Basement	Panel Cabinets	Metal	0.0, -0.1, -0.0

Exterior

ABCD Sides	Siding	Masonry (brick)	No coating
ABCD Sides	Foundation	Concrete	0.3, 0.0, -0.0, 0.1
ABCD Sides	Window sashes	Rubber	No Coating
A B D Sides	Doors	Anodized Aluminum	No Coating

Summary of the XRF Testing Results**SUMMARY**

Lead Based Paint was detected on:

- Metal ladder in the 4th floor mechanical room left of the rear elevator.
- Vinyl baseboards alongside the staircase treads and risers on all floors.
- Boiler in the basement.

End of Report

ATTACHMENT E

PHOTOGRAPHS

Photographs – Shriver Building Roof



Black tar on roof flashing



Pink fiberboard over Styrofoam, and black tar on roof deck (at depth)



White penetration sealant

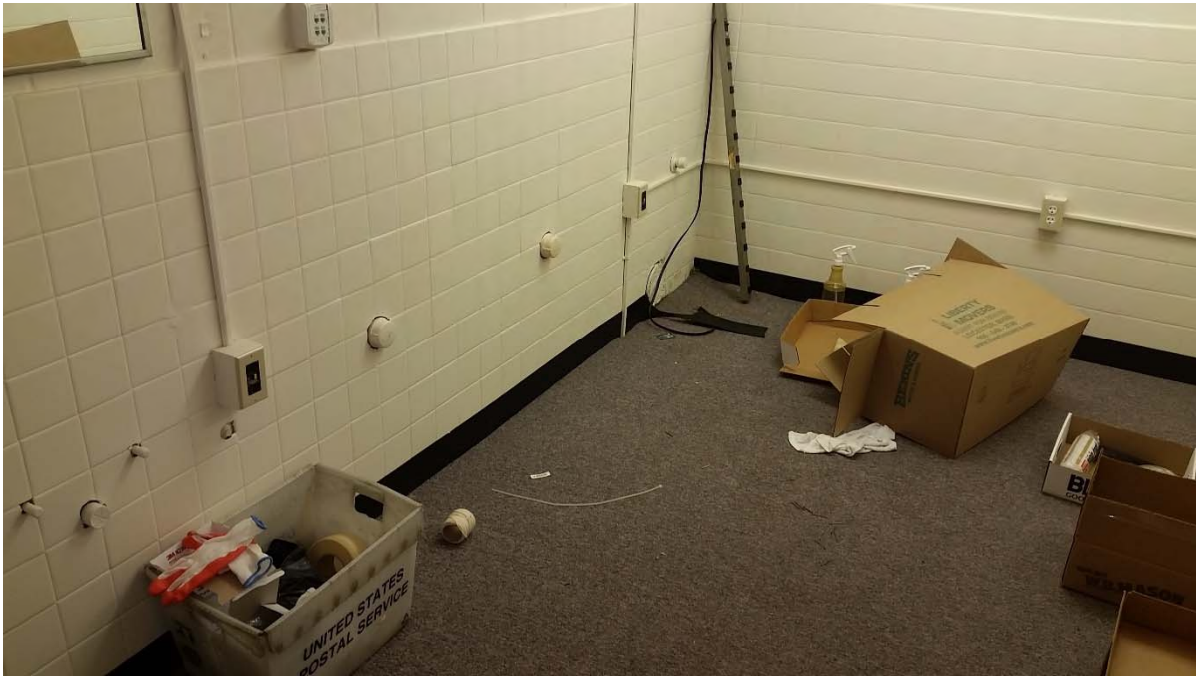


Non-ACM grey seam sealant and ACM red seam sealant



Black stanchion sealant

Photographs – CERC Building Interior



Yellow carpet mastic (under carpet), black cove base and associated mastic



ACM 9"x9" tan floor tile and associated ACM black mastic



2'x4' smooth ceiling tile



2'x4' crow feet ceiling tile



Black stanchion sealant



Ceramic floor tile grout and adhesive



ACM white window glazing



Ceramic wall tile grout and adhesive



Sheetrock and joint compound



2'x2' crow feet ceiling tile



ACM residual black mastic (under carpet)



ACM 9"x9" grey streak floor tile and associated ACM mastic



ACM 9"x9" brown floor tile and associated mastic; non-ACM 12"x12" black floor tile and associated non-ACM black mastic



Blue sheet flooring and associated white mastic



ACM 9"x9" blue streak floor tile and associated ACM mastic



ACM pipe fitting insulation



ACM grey window frame caulk



Beige cove base and associated mastic



12"x12" grey dot floor tile and associated mastic



ACM 12"x12" beige mottled floor tile and associated non-ACM white mastic



ACM black sink undercoat

PHOTOGRAPHS- Suspect Asbestos Containing Materials
Shriver Building



HA 01 2'x4' Ceiling Tile, Sheetrock Type



HA's 02, 03, 04 Sheetrock, Joint Compound, Joint Tape –
4th Floor



HA 05 Seam Caulk



HA 06 Transite Fume Hood



HA 07 Transite Lab Top



HA 08 Transite Fume Exhaust Duct

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA's 09,10 White w/ Black Streaks 12"x12" Floor Tile and



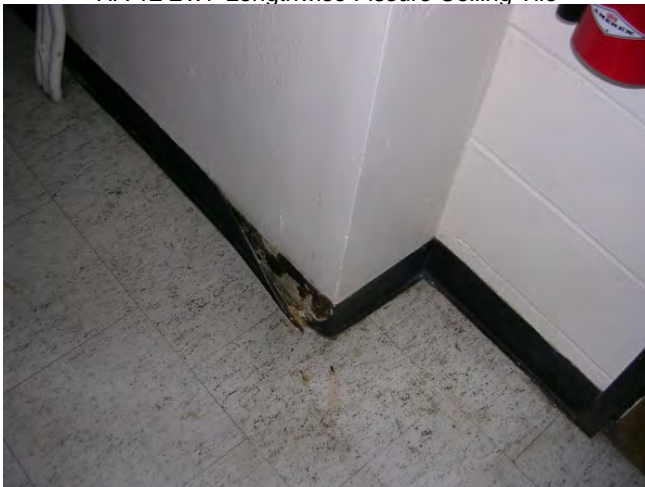
HA 11 Tan epoxy Floor



HA 12 2'x4' Lengthwise Fissure Ceiling Tile



HA 13 Fire Door Insulation



HA's 14,15 Black 4" Cove Base and Mastic



HA 16 Small Diameter Pipe Fitting on Fiberglass

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 17 Small Diameter Pipe Fitting on Fiberglass



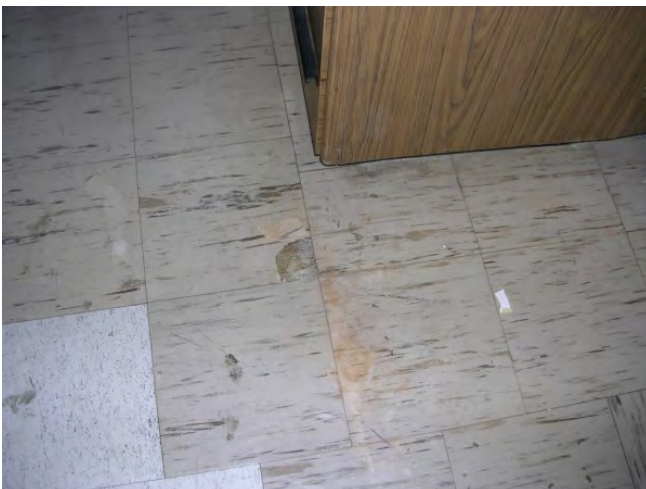
HA's 18 Black Vapor Barrier/Flooring



HA's 19 Interior Window Caulk



HA 20 Skim Coat on Concrete



HA's 21,22 Brown w/ Beige Floor Tile and Mastic



HA's 23,24,25 Sheetrock, Joint Compound, Joint Tape – 3rd

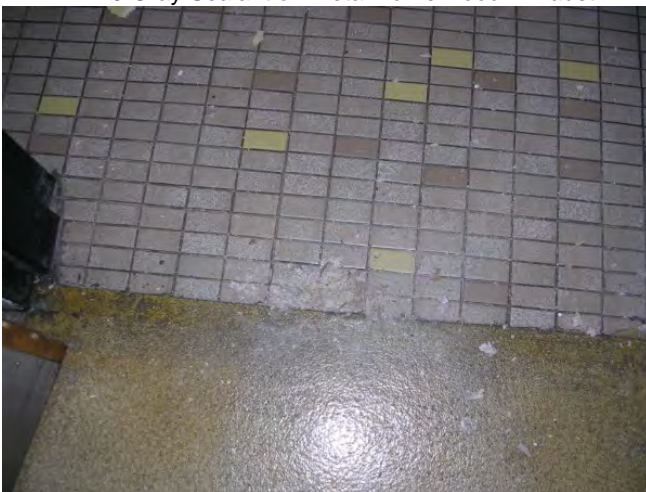
PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 26 Gray Sealant on Metal Fume Hood Exhaust



HA 27 Ceramic Wall Tile Grout



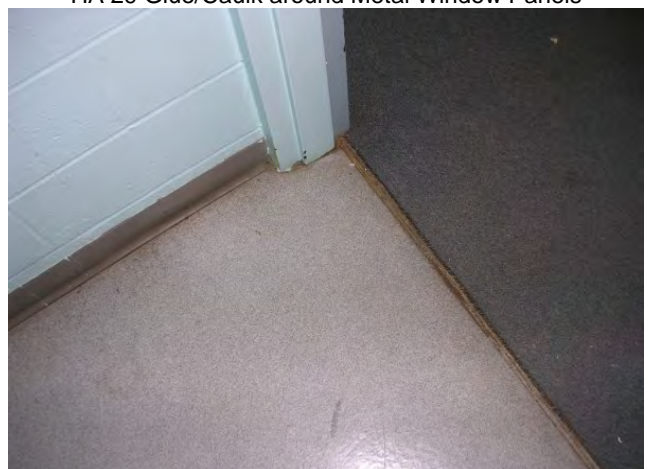
HA 28 Ceramic Floor Tile Grout



HA 29 Glue/Caulk around Metal Window Panels



HA's 30, 31 Plaster Skim and Base Coats



HA 32 Blue/Gray Sheet Flooring

PHOTOGRAPHS- Suspect Asbestos Containing Materials



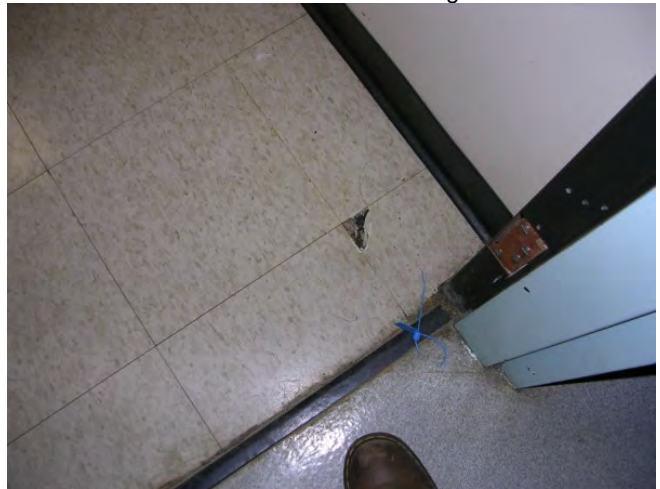
HA 33 2'x4' Fissure Ceiling Tile



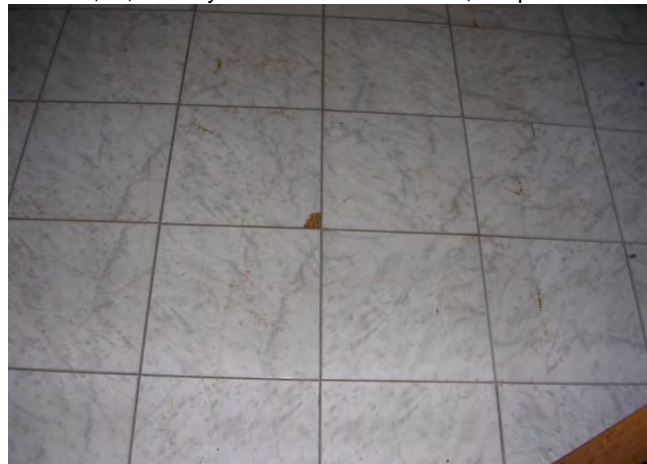
HA 34 2'x4' Cratered Ceiling Tile



HA 35,36,43 Gray Cove Base and Mastic, Carpet Mastic



HA's 37,38 White with Tan 12"x12" Floor Tile and Mastic



HA's 40,41 Faux Marble Floor Tile and Mastic



HA 42 Black Sink Undercoating

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA's 44,45,46 Sheetrock, Joint Compound, Joint Tape – 2nd



HA 47 Red Sealant on Electrical Conduit



HA's 48,49 12"x12" Grey and Black Floor Tile and Mastic



HA's 50,51 12"x12" White with Grey Speck Floor Tile and



HA 52 Silver Door Caulk

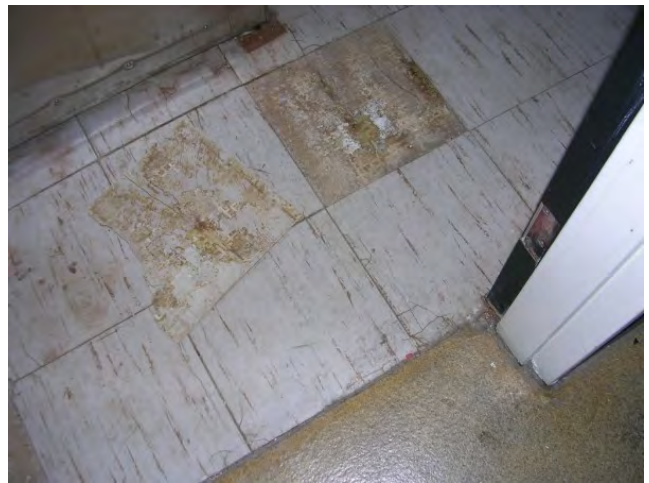


HA 53 Caulking around Elevator

PHOTOGRAPHS- Suspect Asbestos Containing Materials



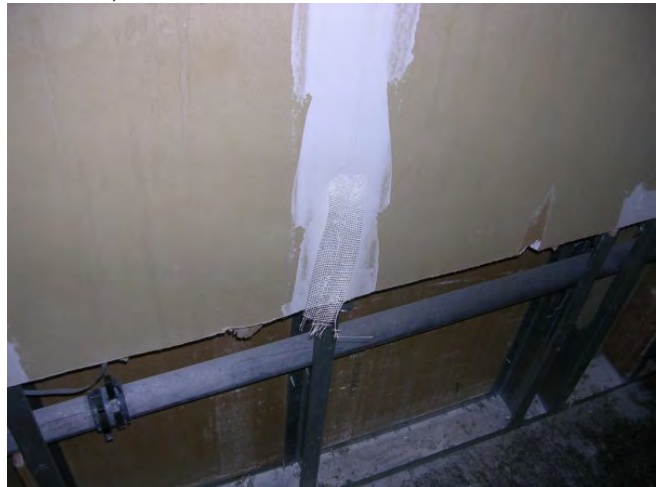
HA 54 Grey HVAC Seam Sealant



HA's 55,56 12"x12" White w/ Brown Streak Floor Tile and



HA's 57,58 12"x12" Grey with Streaks Floor Tile and Mastic



HA's 59,60,61 Sheetrock, Joint Compound, Joint Tape – 1st



HA 62 White/Pink Sink Undercoating



HA 63 Newer Lab Top

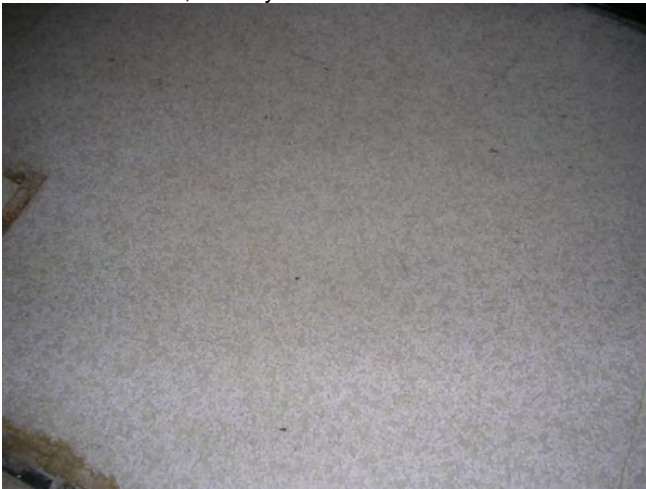
PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA's 64,65 Gray 6" Cove Base and Mastic



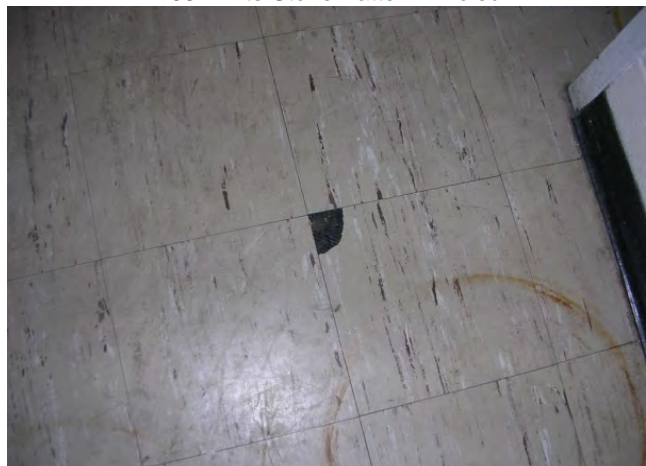
Ha's 66,67 Black Terrazzo Flooring, Reddish Skim on Floor



HA 68 White Stone Pattern Linoleum



HA 69 Textured Paint on Concrete



HA's 70,71 Beige with Brown 12"x12" Floor Tile and Mastic

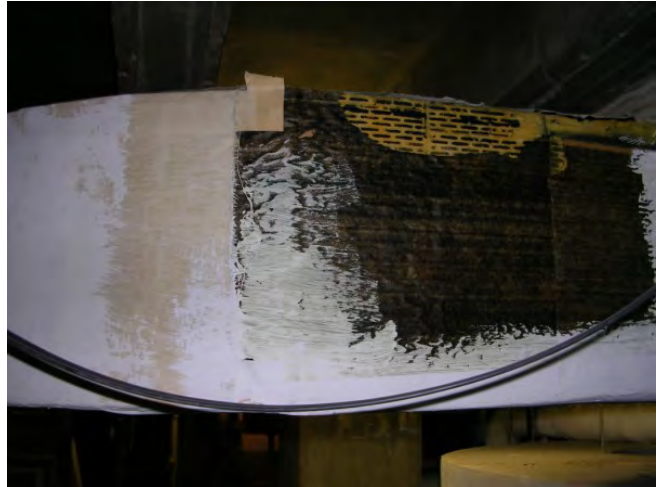


HA's 72,73 Rubber Flooring and Mastic

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 74 Mastic on Wall



HA 75 Black Paper/Mastic on Fiberglass HVAC Insulation



HA 76 Generator Exhaust Insulation



HA's 77,78 Sheetrock and Joint Compound



HA 79 Pipe Gasketing (flange)



HA 80 Window Caulking (brown)

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 81 Window Glazing(brown)



HA 82,83 Window Caulking (Grey), Window Glazing (black)



HA 84 Skim Coat (textured) on Concrete Columns, Exterior



HA 85 Gray Window Glazing



HA 86,87 Plaster at Front Entry, Skim and Base Coats



HA 92 White Caulking on PVC Roof

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 93 Gray Duct Seam Caulk



HA's 94, 95 Green Linoleum and Mastic



HA 96 Styrofoam Ceiling Tile



HA 97 Brown Caulk at Roof Deck



HA 98 Gray Caulk at Roof Deck



HA 99 Textured Concrete

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA 101 White Caulk on Ceiling Grid

PHOTOGRAPHS- Suspect Asbestos Containing Materials
CERC Building



HA's 89, 91 Tar & Gravel Roofing Tars/Felts, Gypsum Roof



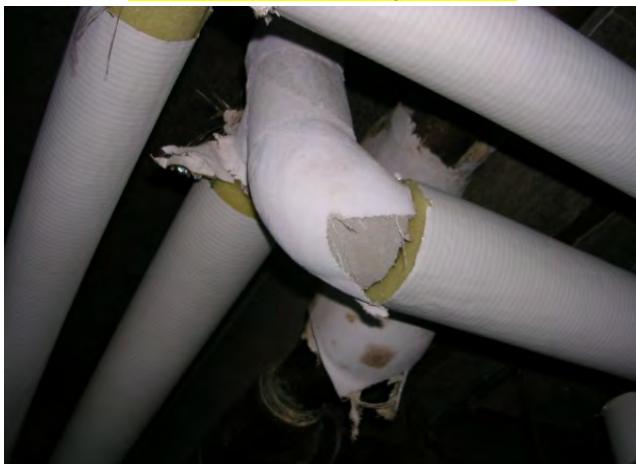
HA 88 Base Flashing Tars/Felts



HA 90 Perimeter Flashing Tars/Felts



HA 03 Large Pipe Fitting on Fiberglass



HA 08 Medium Pipe Fitting on Fiberglass



HA 01 Tank Insulation

PHOTOGRAPHS- Suspect Asbestos Containing Materials



HA's 04,05 2'x4' Ceiling Tile, White Speck and Fissured



HA06 2'x4' Ceiling Tile Textured



HA 07 Silver Duct Sealant



HA 09 Black Caulk on Roof Vents



HA 02 White Mud on Fiberglass Caps

ROOFING

ATTACHMENT F

PCB LABORATORY REPORT

September 22, 2017

John Vaz
EFI Global
155 West Street
Wilmington, MA 01887

Project Location: Fernald School-Shriver/CERC
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 17I0449

Enclosed are results of analyses for samples received by the laboratory on September 12, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive style with a large, prominent 'K' and 'M'.

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EFI Global
 155 West Street
 Wilmington, MA 01887
 ATTN: John Vaz

REPORT DATE: 9/22/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 1710449

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Fernald School-Shriver/CERC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCB-001	1710449-01	Caulk		SW-846 8082A	
PCB-002	1710449-02	Caulk		SW-846 8082A	
PCB-003	1710449-03	Caulk		SW-846 8082A	
PCB-004	1710449-04	Caulk		SW-846 8082A	
PCB-005	1710449-05	Caulk		SW-846 8082A	
PCB-006	1710449-06	Caulk		SW-846 8082A	
PCB-007	1710449-07	Caulk		SW-846 8082A	
PCB-008	1710449-08	Caulk		SW-846 8082A	
PCB-009	1710449-09	Caulk		SW-846 8082A	
PCB-010	1710449-10	Caulk		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:**L-07A**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:**Aroclor-1016**

B186218-BSD1

Aroclor-1016 [2C]

B186218-BSD1

Aroclor-1260

B186218-BSD1

Aroclor-1260 [2C]

B186218-BSD1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Aroclor-1016**

B186218-BLK1, B186218-BS1

Aroclor-1016 [2C]

B186218-BLK1, B186218-BS1

Aroclor-1260

B186218-BLK1, B186218-BS1

Aroclor-1260 [2C]

B186218-BLK1, B186218-BS1

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl**

1710449-01[PCB-001], 1710449-02[PCB-002], 1710449-03RE1[PCB-003], 1710449-04[PCB-004], 1710449-05[PCB-005], 1710449-06[PCB-006], 1710449-08[PCB-008], 1710449-09[PCB-009], 1710449-10[PCB-010]

Decachlorobiphenyl [2C]

1710449-01[PCB-001], 1710449-02[PCB-002], 1710449-03RE1[PCB-003], 1710449-04[PCB-004], 1710449-05[PCB-005], 1710449-06[PCB-006], 1710449-08[PCB-008], 1710449-09[PCB-009], 1710449-10[PCB-010]

Tetrachloro-m-xylene

1710449-01[PCB-001], 1710449-02[PCB-002], 1710449-03RE1[PCB-003], 1710449-04[PCB-004], 1710449-05[PCB-005], 1710449-06[PCB-006], 1710449-08[PCB-008], 1710449-09[PCB-009], 1710449-10[PCB-010]

Tetrachloro-m-xylene [2C]

1710449-01[PCB-001], 1710449-02[PCB-002], 1710449-03RE1[PCB-003], 1710449-04[PCB-004], 1710449-05[PCB-005], 1710449-06[PCB-006], 1710449-08[PCB-008], 1710449-09[PCB-009], 1710449-10[PCB-010]

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:**Tetrachloro-m-xylene**

B186218-BSD1

Tetrachloro-m-xylene [2C]

B186218-BSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", is written over a light gray rectangular background.

Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-001

Sampled: 9/12/2017 12:00

Sample ID: 1710449-01

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1221 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1232 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1242 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1248 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1254 [2]	20000	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1260 [1]	26000	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1262 [1]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Aroclor-1268 [2]	ND	5000	mg/Kg	25000		SW-846 8082A	9/14/17	9/19/17 17:49	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 17:49	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 17:49	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 17:49	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 17:49	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-002

Sampled: 9/12/2017 12:00

Sample ID: 1710449-02

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1221 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1232 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1242 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1248 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1254 [2]	4400	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1260 [2]	4300	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1262 [1]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Aroclor-1268 [2]	ND	2000	mg/Kg	10000		SW-846 8082A	9/14/17	9/19/17 18:07	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 18:07	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 18:07	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 18:07	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 18:07	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-003

Sampled: 9/12/2017 12:10

Sample ID: 1710449-03

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1221 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1232 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1242 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1248 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1254 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1260 [1]	16000	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1262 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Aroclor-1268 [1]	ND	1800	mg/Kg	10000		SW-846 8082A	9/16/17	9/20/17 14:34	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 14:34	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 14:34	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 14:34	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 14:34	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-004

Sampled: 9/12/2017 12:10

Sample ID: 1710449-04

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1221 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1232 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1242 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1248 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1254 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1260 [1]	9800	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1262 [1]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Aroclor-1268 [2]	ND	480	mg/Kg	2500		SW-846 8082A	9/14/17	9/19/17 18:25	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 18:25	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 18:25	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 18:25	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 18:25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-005

Sampled: 9/12/2017 12:35

Sample ID: 1710449-05

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1221 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1232 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1242 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1248 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1254 [1]	730000	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1260 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1262 [1]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Aroclor-1268 [2]	ND	38000	mg/Kg	200000		SW-846 8082A	9/14/17	9/20/17 11:50	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/20/17 11:50	
Decachlorobiphenyl [2]		*	30-150		S-01			9/20/17 11:50	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/20/17 11:50	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/20/17 11:50	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-006

Sampled: 9/12/2017 12:35

Sample ID: 1710449-06

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1221 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1232 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1242 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1248 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1254 [1]	150000	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1260 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1262 [1]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Aroclor-1268 [2]	ND	9800	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:01	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 19:01	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 19:01	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 19:01	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 19:01	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-007

Sampled: 9/12/2017 12:45

Sample ID: 1710449-07

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1221 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1232 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1242 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1248 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1254 [1]	16	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1260 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1262 [1]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Aroclor-1268 [2]	ND	5.0	mg/Kg	25		SW-846 8082A	9/14/17	9/20/17 12:08	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		150	30-150					9/20/17 12:08	
Decachlorobiphenyl [2]		123	30-150					9/20/17 12:08	
Tetrachloro-m-xylene [1]		106	30-150					9/20/17 12:08	
Tetrachloro-m-xylene [2]		107	30-150					9/20/17 12:08	

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Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-008

Sampled: 9/12/2017 12:45

Sample ID: 1710449-08

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1221 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1232 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1242 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1248 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1254 [2]	120	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1260 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1262 [1]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Aroclor-1268 [2]	ND	48	mg/Kg	250		SW-846 8082A	9/14/17	9/19/17 19:37	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 19:37	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 19:37	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 19:37	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 19:37	

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Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-009

Sampled: 9/12/2017 12:55

Sample ID: 1710449-09

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1221 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1232 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1242 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1248 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1254 [1]	160000	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1260 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1262 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Aroclor-1268 [2]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 19:55	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 19:55	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 19:55	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 19:55	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 19:55	

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Project Location: Fernald School-Shriver/CERC

Sample Description:

Work Order: 1710449

Date Received: 9/12/2017

Field Sample #: PCB-010

Sampled: 9/12/2017 12:55

Sample ID: 1710449-10

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1221 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1232 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1242 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1248 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1254 [1]	150000	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1260 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1262 [1]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Aroclor-1268 [2]	ND	9700	mg/Kg	50000		SW-846 8082A	9/14/17	9/19/17 20:13	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		*	30-150		S-01			9/19/17 20:13	
Decachlorobiphenyl [2]		*	30-150		S-01			9/19/17 20:13	
Tetrachloro-m-xylene [1]		*	30-150		S-01			9/19/17 20:13	
Tetrachloro-m-xylene [2]		*	30-150		S-01			9/19/17 20:13	

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Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17I0449-01 [PCB-001]	B186218	0.503	10.0	09/14/17
17I0449-02 [PCB-002]	B186218	0.509	10.0	09/14/17
17I0449-04 [PCB-004]	B186218	0.517	10.0	09/14/17
17I0449-05 [PCB-005]	B186218	0.524	10.0	09/14/17
17I0449-06 [PCB-006]	B186218	0.509	10.0	09/14/17
17I0449-07 [PCB-007]	B186218	0.505	10.0	09/14/17
17I0449-08 [PCB-008]	B186218	0.518	10.0	09/14/17
17I0449-09 [PCB-009]	B186218	0.517	10.0	09/14/17
17I0449-10 [PCB-010]	B186218	0.517	10.0	09/14/17

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17I0449-03RE1 [PCB-003]	B186385	0.568	10.0	09/16/17

QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B186218 - SW-846 3540C										
Blank (B186218-BLK1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	ND	0.20	mg/Kg							R-05
Aroclor-1016 [2C]	ND	0.20	mg/Kg							R-05
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							R-05
Aroclor-1260 [2C]	ND	0.20	mg/Kg							R-05
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	4.57		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.55		mg/Kg	4.00		88.7	30-150			
Surrogate: Tetrachloro-m-xylene	3.58		mg/Kg	4.00		89.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.41		mg/Kg	4.00		85.2	30-150			
LCS (B186218-BS1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	3.5	0.20	mg/Kg	4.00		87.7	40-140			R-05
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		86.5	40-140			R-05
Aroclor-1260	3.4	0.20	mg/Kg	4.00		85.6	40-140			R-05
Aroclor-1260 [2C]	3.0	0.20	mg/Kg	4.00		74.9	40-140			R-05
Surrogate: Decachlorobiphenyl	4.56		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.53		mg/Kg	4.00		88.3	30-150			
Surrogate: Tetrachloro-m-xylene	3.55		mg/Kg	4.00		88.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.38		mg/Kg	4.00		84.5	30-150			
LCS Dup (B186218-BSD1)										
Prepared: 09/14/17 Analyzed: 09/18/17										
Aroclor-1016	1.1	0.20	mg/Kg	4.00		28.6	* 40-140	102	* 30	L-07A
Aroclor-1016 [2C]	1.2	0.20	mg/Kg	4.00		29.0	* 40-140	99.5	* 30	L-07A
Aroclor-1260	1.5	0.20	mg/Kg	4.00		38.3	* 40-140	76.4	* 30	L-07A
Aroclor-1260 [2C]	1.3	0.20	mg/Kg	4.00		32.7	* 40-140	78.5	* 30	L-07A
Surrogate: Decachlorobiphenyl	1.62		mg/Kg	4.00		40.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.30		mg/Kg	4.00		32.6	30-150			
Surrogate: Tetrachloro-m-xylene	1.04		mg/Kg	4.00		26.0	* 30-150			S-26
Surrogate: Tetrachloro-m-xylene [2C]	1.02		mg/Kg	4.00		25.4	* 30-150			S-26

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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B186385 - SW-846 3540C										
Blank (B186385-BLK1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	3.97		mg/Kg	4.00		99.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.75		mg/Kg	4.00		93.7	30-150			
Surrogate: Tetrachloro-m-xylene	3.95		mg/Kg	4.00		98.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.82		mg/Kg	4.00		95.5	30-150			
LCS (B186385-BS1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	3.7	0.20	mg/Kg	4.00		92.3	40-140			
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		86.9	40-140			
Aroclor-1260	3.2	0.20	mg/Kg	4.00		80.4	40-140			
Aroclor-1260 [2C]	2.9	0.20	mg/Kg	4.00		73.4	40-140			
Surrogate: Decachlorobiphenyl	3.59		mg/Kg	4.00		89.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.45		mg/Kg	4.00		86.2	30-150			
Surrogate: Tetrachloro-m-xylene	3.59		mg/Kg	4.00		89.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.52		mg/Kg	4.00		88.1	30-150			
LCS Dup (B186385-BSD1)										
Prepared: 09/16/17 Analyzed: 09/20/17										
Aroclor-1016	3.6	0.20	mg/Kg	4.00		90.9	40-140	1.57	30	
Aroclor-1016 [2C]	3.4	0.20	mg/Kg	4.00		84.3	40-140	2.96	30	
Aroclor-1260	3.2	0.20	mg/Kg	4.00		80.9	40-140	0.631	30	
Aroclor-1260 [2C]	3.0	0.20	mg/Kg	4.00		74.0	40-140	0.761	30	
Surrogate: Decachlorobiphenyl	3.63		mg/Kg	4.00		90.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.45		mg/Kg	4.00		86.2	30-150			
Surrogate: Tetrachloro-m-xylene	3.42		mg/Kg	4.00		85.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.31		mg/Kg	4.00		82.7	30-150			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PCB-001

SW-846 8082A

Lab Sample ID: 1710449-01 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: _____ (mm) GC Column (2): ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	19000	
	2	0.000	0.000	0.000	20000	5.1
Aroclor-1260	1	0.000	0.000	0.000	26000	
	2	0.000	0.000	0.000	25000	3.9

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-002

Lab Sample ID: 1710449-02 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	4000	
	2	0.000	0.000	0.000	4400	9.5
Aroclor-1260	1	0.000	0.000	0.000	4100	
	2	0.000	0.000	0.000	4300	4.8

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-003

Lab Sample ID: 1710449-03RE1 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	16000	
	2	0.000	0.000	0.000	16000	6.1

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-004

Lab Sample ID: 1710449-04 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: _____ (mm) GC Column (2): ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	9800	
	2	0.000	0.000	0.000	8300	16.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-005

Lab Sample ID: 1710449-05 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	730000	
	2	0.000	0.000	0.000	650000	11.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-006

Lab Sample ID: 1710449-06 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	150000	
	2	0.000	0.000	0.000	150000	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PCB-007

SW-846 8082A

Lab Sample ID: 1710449-07 Date(s) Analyzed: 09/20/2017 09/20/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	16	
	2	0.000	0.000	0.000	16	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-008

Lab Sample ID: 1710449-08 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	110	
	2	0.000	0.000	0.000	120	8.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-009

Lab Sample ID: 1710449-09 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	160000	
	2	0.000	0.000	0.000	150000	6.5

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**
SW-846 8082A

PCB-010

Lab Sample ID: 1710449-10 Date(s) Analyzed: 09/19/2017 09/19/2017

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): ID: _____ (mm) GC Column (2): ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	150000	
	2	0.000	0.000	0.000	150000	6.5

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
S-26	Surrogate outside of control limits.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

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 www.contestlabs.com



con-test[®]
 ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client EFI Global
 Received By RLF Date 9/12/17 Time 1900

How were the samples received? In Cooler T No Cooler On Ice T No Ice
 Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 3.8°C
 By Blank # Actual Temp -

Was Custody Seal Intact? NA Were Samples Tampered with? NA
 Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent Information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T
 Are there Lab to Filters? F Who was notified?
 Are there Rushes? F Who was notified?
 Are there Short Holds? F Who was notified?

Is there enough Volume? T
 Is there Headspace where applicable? NA MS/MSD? NA
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? NA
 Do all samples have the proper pH? Acid NA Base NA

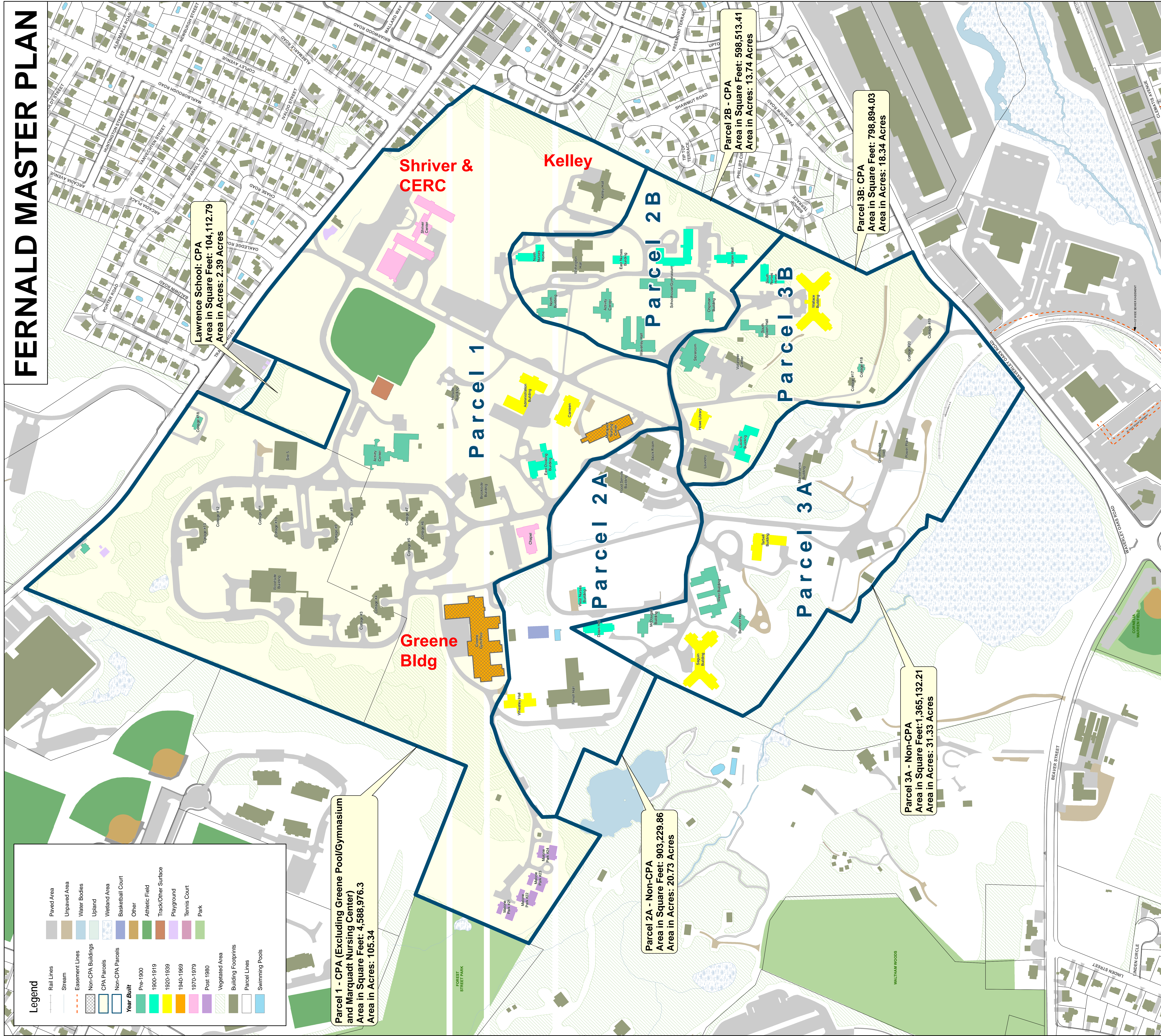
Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:

FERNALD MASTER PLAN



Lawrence School: CPA
 Area in Square Feet: 104,112.79
 Area in Acres: 2.39 Acres

Parcel 1 - CPA (Excluding Greene Pool/Gymnasium and Marquadt Nursing Center)
 Area in Square Feet: 4,588,976.3
 Area in Acres: 105.34

Parcel 2A - Non-CPA
 Area in Square Feet: 903,229.86
 Area in Acres: 20.73 Acres

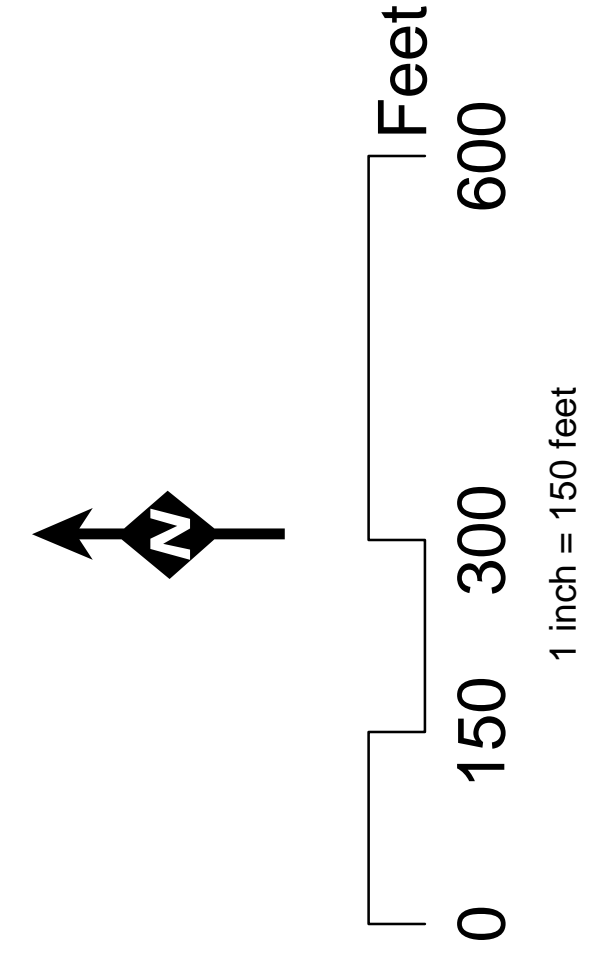
Parcel 2B - CPA
 Area in Square Feet: 598,513.41
 Area in Acres: 13.74 Acres

Parcel 3B: CPA
 Area in Square Feet: 798,894.03
 Area in Acres: 18.34 Acres

Parcel 3A - Non-CPA
 Area in Square Feet: 1,365,132.21
 Area in Acres: 31.33 Acres

Legend	
	Rail Lines
	Stream
	Easement Lines
	Non-CPA Buildings
	CPA Parcels
	Non-CPA Parcels
Year Built	
	Pre-1900
	1900-1919
	1920-1939
	1940-1969
	1970-1979
	Post 1980
	Vegetated Area
	Building Footprints
	Parcel Lines
	Swimming Pools

FERNALD MASTER PLAN



DISCLAIMER:
 This map is for reference and planning purposes only. It is prepared for the inventory of real property within the City of Waltham and is compiled from tax maps. The City of Waltham does not warrant the accuracy of the information sources used in the preparation of this map. The City of Waltham assumes no liability for any errors or omissions contained in this map. The City of Waltham assumes no legal responsibility for the information contained herein.

DATA SOURCE:
 The map data was developed by City of Waltham GIS and is based on aerial photography from 2015. The map is at a scale of 1" = 150' and is based on aerial photography. The parcel data is current as of January 1, 2016.

Map prepared by City of Waltham GIS.

